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Editorials

THE SAN FRANCISCO SESSION OF THE A. M. A.

The eighty-ninth convention of the American Medical Association had the largest Pacific coast registration on record.

Six thousand and thirty-four physicians, surgeons and specialists attended the convention. Upwards of 250 were from Illinois, participated in its general sessions, meetings of its special sections and viewed and studied the million dollar commercial exhibit assembled in the Civic Auditorium.

In the scientific sections the attendance was way beyond the capacity of even the large halls which had been assigned to them. The frequent complaint was that there was not room in the large auditoriums used for section meetings. Moreover, many of the topics which had been in the forefront of medical consideration during the past year were exhaustibly considered including particularly blood dyscrasias, industrial diseases and new methods in the treatment of psychiatric conditions.

The entertainment at San Francisco was all that could be desired and that connoisseurs could devise. There were various tours of the city and surrounding points of interest, including San Quentin prison, the Navy Hospital Ship Relief, and the various points of interest.

THE HOUSE OF DELEGATES

The one hundred and seventy-five members of the House of Delegates representing the medical profession of the respective forty-eight states and American possessions, convened promptly at 10 a. m., June 13, to listen to the summarizing of the Association's activities of the past year and to the reports of the trustees and various committees and officers of the Association as well as to the introduction of resolutions and the appointment of a personnel for the various committees and for the transaction of routine business.

At the meetings of the House of Delegates many matters were presented which have a vital

bearing on the future of medical practice. All controversial subjects were thrashed out in reference committee meetings, thus avoiding discussions which would have been impractical in a general meeting.

The complete proceedings of the House of Delegates were published in the *Journal of the American Medical Association,* July 2, 1938, and should be carefully read and contents thoroughly digested by every member. By a careful perusal of the proceedings as published in the July 2, issue, the reader will get a general bird's-eye view of what actually happened.

The House of Delegates lost no time in getting down to considering the problem of medical economics. At this session as in previous sessions, covering a period of years, the problem of medical economics was paramount and received more consideration than any other problem. Tax-paid medicine or socialized medicine is our major present day problem. Regimentation of the healing profession under paternalistic governmental auspices was hit hard in speech, report and resolutions throughout the entire session of the House of Delegates.

Both the incoming and outgoing Presidents of the Association challenged all attempts to wrest from the profession control over its own services. The Board of Trustees hit recent agitation for tax-paid medicine by some grandiose scheme. The incoming president Dr. Irving Abell, said: "The health of the nation neither should be made the football of politics nor consigned to the fallacious judgment of those who are untrained in the intricacies of its care." The retiring president, Dr. Upham, said: "A manifest determination of the medical profession to preserve the individual type of practice as best suited to this country and to maintain that practice on the highest possible plane is the ideal plan."

The speaker of the House of Delegates Dr. Van Etten, reminding the delegates of their powers and responsibilities said: "Every practitioner of medicine looks to you, *and back of these practitioners are millions of people who are daily looking for the best in medical care,* not merely adequate care or just any medical care that may be promised by fraternalistic bureaus, but a constantly improving medical care that a constantly improving medical profession can offer them."

The speaker further remarked: "I have faith in the success of the medical profession in riding out disgruntled criticism, and I believe that the general sanity of the American people will lead them to support an honest medical service such as is offered by the American Medical Association.

The report of the board of trustees is characterized by a very notable expansion of the activities of the various councils, bureaus, and departments of the Association until, at times, available facilities have been seriously strained.

The gross earnings of the Association for the year 1937 were $1,654,203.74; operating expenses were $982,830.10; the operation of the council, bureaus and departments amounted to $431,635.63; incidental expenses, including insurance, taxes, building expenses and depreciation, fuel, legal services and special publications amounted to $218,601.19, showing a net income of $122,242.92 of which sum $83,563.74 represents income from investments so that the actual net operating income was $38,679.18.

The special journals published by the American Medical Association were published at a loss of $25,958.37 to the Association in 1937, while *Hygeia* was published at a loss of $31,-004.90. It may be necessary to discontinue some of the special publications if subscriptions therefore are not increased. The quarterly cumulative *Index Medicus,* an almost indispensable publication, lost $42,616.32; the American Medical Directory also a medical necessity loses money.

The Board of Trustees reported that the Federal Bureau of Internal Revenue had rescinded its decision, that the A.M.A. does not come within the purview of the revenue act of 1936; that the association is not a scientific or educational corporation within the meaning of that act, but, rather, that it is a business organization and, therefore not exempt from tax under the social security act This means that the A.M.A. is now required to pay between $50,000 and $100,000 for the current year alone and that if the revenue department decides the law is retroactive the association may have to pay at least a quarter of a million dollars. An appeal from this decision has been filed and it is hoped that an equitable decision with regard to the matter will eventually be reached.

The report of the secretary shows that on April 1, 1938, the number of members enrolled

was 109,435, as compared to 105,460 on the corresponding date in 1937, an increase in membership of approximately 4,000 and in fellowship more than 2,000. The secretary also reported a steady growth of better organizations throughout the United States.

The Bureau of Medical Economics is conducting a survey of need for medical care and it was suggested that in making this survey it is necessary that every State and County medical society heartily co-operate, as this information will be essential to determine the exact need for any change in the plan for medical practice.

Throughout the sessions of the House of Delegates the subject of medical care was much under discussion and it was repeatedly emphasized that it is not the high cost of medical care, but rather the general low economic status of a certain class of people that makes them unable to purchase that care. It was repeatedly pointed out that the correction lies in the improvement of the economic status of these people and not in any change in medical practice or any form of government control of medical practice. When economic conditions are so adjusted that employment carries a living wage, then adequate medical care under our present setup will be available to all the people.

The bureau of medical economics has also investigated the many forms of medical practice and has made extensive study of group hospitalization and workmen's compensation. They have also looked into the insurance medical directories and advise physicians not to be victimized by publishers of pay-as-you-enter insurance medical directories.

The bureau of legal medicine and legislation reports much activity during the past year supporting the enactment of the National Cancer Institute Act, the Marihuana tax act, an act authorizing the bureau of mines to manufacture and sell helium for medical and other non-governmental uses and an act devolving on the federal trade commission jurisdiction over the advertising of foods, drugs, diagnostic therapeutic devises and cosmetics.

The report of the judicial council gave some pertinent reminders to county and state medical societies. It advised strongly against any society passing specific resolutions for the purpose of controlling unethical practice; for instance, forbidding contract practice. The council foresaw only trouble from this method and advised proceedings against members under the general code of ethics. The council also suggested that the county and state medical societies should adopt a definite and standard procedure for hearings on ethical conduct.

The House of Delegates endorsed the visual standard for automobile drivers which were recommended by the Section on Ophthalmology.

FOR A DEPARTMENT OF PUBLIC HEALTH

The Federal Department of Public Welfare included in the recent government reorganization bill was condemned by the House of Delegates. In its place the delegates at San Francisco again approved a Cabinet Department of Health which should be directed by a medical man as secretary. It was deemed appropriate and essential that the delegates should point out specifically that they, and not the special societies or individuals anywhere are the truly qualified representatives of medical practitioners in America and that their actions in San Francisco reflect the policies and beliefs of organized medicine in the United States.

It is probable there were more interested newspaper reporters from all parts of the country than ever before when the House of Delegates of the American Medical Association met in June, 1938.

Contrary to expectations of agitators who endeavor to incite disharmony and revolt among the physicians who represent the medical profession in the House of Delegates, the House displayed a singleness of purpose and soundness of attitude in its concern with the important question that came before it.

The American Medical Association emerged from the storm and stress at San Francisco without the split predicted in the headlines by the 430 episode, and it is still firmly established as to public policy upon the foundation of the famous ten principles. The fundamental principles adopted at Cleveland were reiterated as basic to a high quality of medical service.

The House of Delegates considered and adopted many and far reaching resolutions. Several of the more important are as follows:

Dr. E. H. Skinner, Section on Radiology, presented a resolution having to do with the standards of practice of medicine in hospitals, attempting to define the status of the radiologist, the pathologist, and the anesthetist under

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hospital insurance plan. It was refered to the council on education and hospitals which considered several resolutions which were offered from various sections of the country. The report of the council on medical education and hospitals is as follows:

The proposers of these resolutions, the delegates from the Massachusetts Medical Society, members of the California Medical Association and others met with the Council to express their views concerning the problems that concern the practice of medicine in hospitals by radiologists, pathologists and anesthetists. These problems have been rendered more acute by the rapid extension of systems of group hospital insurance within the last few years. The Council believes that these problems are of vital concern to the medical profession; that unwise decisions at this time may lead to consequences that would be disastrous to physicians and to the public alike, and that, therefore, a serious study should be made of existing relationships between hospitals and the physicians practicing therein, especially in the departments of anesthesia, radiology, pathology and physical therapy, with a view to standardizing the relationship of these services to the hospital and, where necessary, of reaffirming the principles of ethics involved.

The Council recommends that it, jointly with the Bureau of Medical Economics, be authorized to undertake these studies and to confer with other interested agencies, in order that it may be in a position to establish ethical standards for the practice of medicine by physicians holding positions in hospitals and to prevent the exploitation of either the public or the profession. If during this study it is revealed that hospitals registered and approved by the Council are exploiting the public or the profession, such approval may be revoked.

In conformity with the action of the House of Delegates a thorough study will be made during the coming year and proper recommendations will unquestionably be submitted to the House of Delegates at the 1939 session.

Until new recommendations and their adoptions by the House of Delegates, the policy of the American Medical Association in relationship to these matters remain unchanged. In the interval before final adoption it is well to remember the action taken by the House of Delegates in 1938, which reads:

Since . . . some state and county medical societies may find it necessary to develop preferable procedures for supplying the needs where medical services are insufficient or unavailable, it is urged that these medical societies be guided in the development of these procedures by the ten principles adopted by the House of Delegates in 1934. The application of these ten principles to specific suggestions or proposals for the organization of medical services may be facilitated by utilizing the method of direct cash payments to individual members. Your committee unanimously concurs in the suggestion and recommends that the American Medical Association adopt the principle that in any place or arrangement for the provision of medical services the benefits shall be paid in cash directly to the individual member. Thus, the direct control of medical services may be avoided. Cash benefits only will not disturb or alter the relations of patients, physicians and hospitals.

Your committee has considered in detail that portion of the report of the Board of Trustees devoted to the Bureau of Medical Economics under the heading "Group Hospitalization" and also the separate statement of the Bureau of Medical Economics entitled "Group Hospitalization Insurance." Your committee commends the clarity and forcefulness of these statements and recommends that the ten principles adopted in 1934 as the policy of the American Medical Association be amplified by the addition of the following statement to Principle 4:

If for any reason it is found desirable or necessary to include special medical services such as anesthesia, radiology, pathology or medical services provided by outpatient departments, these services may be included only on the condition that specified cash payments be made by the hospitalization organization directly to the subscribers for the cost of the services.

Disapproval of the inclusion of special medical services on a service basis in hospitalization insurance contracts will then be explicit but a constructive alternative arrangement will be possible.

The actions taken by the House of Delegates is clear cut and definite and until modified is the point of view of the American Medical Association.

The lay press seems obsessed to put across the message to the effect that the American Medical Association and various groups within the profession oppose a hospital insurance system.

The attitude of the lay press is not in conformity with real facts. The medical profession is positively opposed to the various types of hospital insurance plans which violate State insurance laws governing medical practice, and to those plans promoted for individual gain.

Many hospital service plans continue to ignore State Medical Practice Acts which require persons to possess certain educational requirements and pass an examination before they are permitted to diagnose illness or treat the sick Hospitals and hospital insurance corporations cannot fulfil these requirements. In most states the courts have therefore recognized that it is contrary to good public policy for a corporation to attempt to practice medicine by hiring physicians to practice medicine for the corporation.

Physicians have always objected to those arrangements whereby a corporation (and most hospitals are corporations) attempts to sell the services of roentgenologists, pathologists and anesthetists in a manner which results in a profit for the corporation or places the directors of the corporation in control of the personal relations between the patient and his physician. Similar undesirable relations are created when a corporation attempts to practice any profession. Consequently, the courts have also recognized that a corporation cannot practice law or hire lawyers to practice law for it. The same holds true of dentistry. These principles are maintained to give the individual person reasonable assurance that he will receive competent services from physicians, lawyers and dentists.

The action taken by the House of Delegates in San Francisco holds that it is desirable to permit each person to receive the benefits from a hospital insurance system in cash so that he may purchase his own medical services from whatever source he may desire. When the individual himself pays for the services he receives he can be assured of adequate and satisfactory services; otherwise he can refuse to make the payment. Under the cash-to-the-insured payment arrangement, which is the long-established method used by accident and health insurance companies, the insured person receives a definite number of dollars with which he can purchase services that are satisfactory to him. He does not have to accept whatever services may be offered by the insuring organization. The rights of the patient certainly are superior to those of the hospital, the corporation or any other interest.

THE COMMITTEE ON PUBLIC RELATIONS

Resolutions suggesting the appointment of public relations committee which would be responsible to the House of Delegates rather than to the Board of Trustees and who would direct the public contact and be spokesman for the American Medical Association was introduced by delegates from Michigan and California. The Michigan resolutions proposed a change in by-laws which would provide for such a committee and place a limited amount of money at its disposal. Both resolutions were referred to the Reference Committee on Amendments to the Constitution and By-Laws and later to the joint committee of the Committee on Amendments to Constitution and By-Laws and the Committee on Legislation and Public Relations. During the entire interim between the first and last sessions of the House of Delegates the Joint Committee heard arguments pro and con and labored strenuously to bring about a proper and at the same time amicable solution of the problems presented by the resolutions. At the last session of the House of Delegates the Joint Committee submitted the following report:

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BY-LAWS AND REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS AS A JOINT COMMITTEE.

Dr. H. A. Luce, Chairman of the Joint Committee, presented the following report, which was adopted on motion of Dr. Luce, seconded by Dr. A. A. Ross, Texas, and carried:

Your joint committee wishes to state at the outset that in its opinion there exists within the House of Delegates, all officers of the society and the entire membership of the organization complete harmony as to purposes and objectives, said purposes and objectives being better trained and better qualified physicians to the end that American people may still continue the recipients of the highest quality of service. Furthermore, any apparent lack of harmony in the ranks of organized medicine is not based on truth but is due to attempts to discredit that large group who from the time of Aesculapius has contributed so much to human life and happiness.

Your joint committee has given careful and prolonged consideration to the proposed amendments to the By-Laws, presented by the delegation from the state of Michigan, proposing the creation of a committee on public relations, and the cognate resolutions presented by Dr. Lyell C. Kinney, California, requesting the Board of Trustees to employ professional public relations counsel, the proposed amendments and resolutions having the object of establishing a closer relationship between the public and organized medicine.

Delegates from the states of California, Massachusetts and New York spoke in support of the resolutions, and a number of other delegates appeared to denote their interest. Your committee also received from Dr. Austin A. Hayden, Secretary of the Board of Trustees, from Dr. Olin West, Secretary, from Dr. Morris Fishbein, Editor of THE JOURNAL, from Dr. W. C. Woodward, Director of the Bureau of Legal Medicine and Legislation, from Dr. W. W. Bauer, Director of the Bureau of Health Education, and from Dr. R. G. Leland, Director of the Bureau of Medical Economics, detailed information concerning the contacts and channels through which the public is constantly reached through agencies already in existence and in active operation. The joint committee was impressed with the importance of avoiding any innovation which might disturb these arrangements, which

have been built up through the years and depend on many subtle and delicate personal relationships.

Your joint committee also considered the implications of the costs involved, together with the tax liabilities that might arise from any radical change in the methods of publicity maintained by the Association.

The foregoing considerations have led your committee to return the proposed amendments and resolutions without its approval. However, the committee feels impelled by reason of the sentiment revealed by the presentation of these proposed amendments and resolutions and the support of them from so many diverse quarters, as well as by common knowledge of the frequent unsatisfactory attitude of the press, to ask the House of Delegates to impress on the Board of Trustees its feeling that careful consideration should be given to the operation of our agencies of public information so that, on the one hand, the necessary *fortiter in re* may be preserved and, on the other hand, that certain deficiencies of *suaviter in modo* may be corrected.

Respectfully submitted.

For the Committee on Amendments to the Constitution and By-Laws:

For the Committee on Legislation and Public Relations:

Adopted without a dissenting vote.

From Wisconsin and Iowa came resolutions objecting to the policies followed by the Council on Foods in connection with butter and butter substitutes. In an earlier ruling the council decided that pure butter needs no approval and that butter substitutes do need certification. The butter industry contended that butter should be listed if the substitutes are to be listed. The Reference Committee recommended that the Council on Foods, re-establish suitable standards for acceptance of butter and covering the advertisements thereof. The report of the committee was adopted.

A resolution from Illinois asking for an opinion on the ethical standing of physicians teaching in schools of chiropody was referred to a Reference Committee for consideration, the Reference Committee recommended that same be referred to the Judicial Council for review and subsequent report.

A resolution was introduced and approved which requested that the Federal Government be petitioned to create a Bureau of Health to consider all health matters which are not referable to the services of the Army and Navy.

A resolution was unanimously passed deploring the bombing of hospitals, Red cross units and innocent people in countries now at war.

Some of the more important activities passed by the House of Delegates may be listed as follows:

Reiterated its previous approval of the activities of its committee on contraception.

Approved a recommendation of the Judicial Council which among other things makes it unethical for any one to give direction for the use of rented radium, unless the person giving the direction actually sees the patient on whom the rented radium is to be used.

In executive session considered the evidence given and the resolutions proposed by the New Jersey delegates criticizing some activities of the editor of the Journal of the A. M. A.

Received the address and accepted the invitation of Miss Josephine Roche, representing the President of the United States, to send an official representative of the Association to the then forthcoming meeting of the Welfare Committee in Washington.

Elected Dr. Rudolph Matas of New Orleans as recipient of the distinguished service award.

Elected Dr. Rock Sleyster of Wisconsin president-elect. Elected as vice-president Dr. Howard Morrow of California; elected speaker of the House Dr. H. H. Shoulders, Tennessee; elected vice-speaker, Dr. R. W. Fouts, Nebraska.

The following places were selected for the next there annual meetings off the association; St. Louis in 1939, New York City in 1940, and Cleveland in 1941.

ILLINOIS PHYSICIANS WHO ATTENDED SAN FRANCISCO MEETING.

(Registered Monday)

Abt, Arthur F., Chicago
Adair, F. L., Chicago
Anderson, U. N., Chicago
Anderson Hamilton, Chicago.
Applebach, Carl W., Chicago
Arestad, F. H., Chicago
Armstrong, Wilber P., Jr., Springfield
Ayling, G. H., Kankakee
Baer, Joseph L., Chicago
Baker, William J., Chicago
Barbour, Orville, Peoria
Barker, M. Herbert, Chicago
Bauer, W. W., Chicago
Beck, Joseph C., Chicago
Benjamin, R. L., St. Anne
Biehn, Highland Park
Bing, F. C., Chicago
Birch, Carroll L., Chicago
Bousfield, M. O., Chicago
Braun, Will C., Chicago

Browne, R. W., Dwight
Buhlig, Walter H., Chicago
Burstein, H. J., Decatur
Camp, Harold M., Monmouth
Campione, N. Louis, Chicago
Carlson, A. J., Chicago
Carr, James G., Chicago
Chor, Herman, Chicago
Connelly, Marie L., Chicago
Conner, James A., Chicago
Cornbleet, Theodore, Chicago
Creer, Ralph P., Hines
Curtis, Arthur H., Chicago
Cutter, W. D., Chicago
Czaja, Leo M., Chicago
Davidsohn, Israel, Chicago
Diamond, I. B., Chicago
Dorne, Maurice, Chicago
Duane, Joseph F., Peoria
Durham, O. C., North Chicago
Dyas, Frederick G., La Grange
Ericson, Charles E., Quincy
Fenger, Frederic, Chicago
Finnerud, Clark W., Chicago
Fishbein, Morris, Chicago
French, Robert L., Oak Park
Galloway, Charles Edwin, Evanston
Geiger, Arthur H., Chicago
Gellhorn, Ernest, Chicago
Green, W. I., Lawrenceville
Hall, Alice K., Chicago
Hamilton, E. S., Kankakee
Hardt, Leo L., Chicago
Harger, John R., Chicago
Hark, Florence W., Chicago
Hawkinson, Oscar, Chicago
Hayden, Austin A., Chicago
Heckel Norris J., Chicago
Henricksen, Karl J., Chicago
Hirsch, Edwin F., Chicago
Holmes, Rudolph W., Chicago
Holt, Helen, Chicago
Hospers, Cornelius A., Chicago
Howell, Katharine M., Chicago
Hruby, Allan J., Chicago
Hull, Thomas G., Chicago
Hutton, James H., Chicago
Irons, Ernest E., Chicago
Ivy, A. C., Chicago
Jansey, Felix, Chicago
Jenkinson, Edw. L., Chicago
Johnson, Russell C., Berwyn
Kato, Katsuji, Chicago
Kaufmann, Gustav, L., Chicago
Kemp, Robert S., Chicago
Kern, Maximilian, Chicago
Kittler, W. E., Rochelle
Kretschmer, Herman L., Chicago
Laing, Grant H., Chicago
Larrain, Abel R., Chicago
Leech, Paul Nicholas, Chicago
Leland, R. G., Chicago
Lewin, Philip, Chicago
Low, Abraham, A., Chicago
Luhan, Joseph A., Chicago
McNulty, Patrick H., Chicago
Mackay, Roland P., Chicago
Marshall, William A., Chicago
Mayers, Laurence H., Chicago
Merkel, Henry, Wilmington
Metz, A. R., Chicago
Miller, C. O., Chicago
Milles, George, Chicago
Montgomery, Albert H., Chicago
Moore, J. J., Chicago
Mundt, G. Henry, Chicago
Myers, William H., Coal Valley
Neal, Mary Paulson, Quincy
Packard, R. K., Chicago
Parsons, Eloise, Chicago
Pflock, John J., Chicago
Pollack, M., Peoria
Portis, Sidney A., Chicago
Pronger, Earle J. W., Blue Island
Quinn, H. Edmond, Chicago
Robins, Louis S., Chicago
Rosenthal, Louis M., Chicago
Saphir, Otto, Chicago
Schmidt, Florian E., Chicago
Schmitz, Henry, Chicago
Schneider, Philip F., Evanston
Schorr, Henry C., Chicago
Searle, C. H., Chicago
Singer, H. Douglas, Chicago
Skaggs, Charles S., East St. Louis
Soper, Gail R., Evanston
Speed, Kellogg, Chicago
Spivek, Mandel L., Chicago
Stein, Justin John, Hines
Steinberg, D. L., Elgin
Stuppy, George William, Chicago
Tate, Louis N., Galesburg
Thorek, Max, Chicago
Unger, Leon, Chicago
Van Hoosen, Bertha, Chicago
Van Prohaska, John, Chicago
Voigt, C. B., Mattoon
Walsh, James J., Chicago
Weissman, Morris, Chicago
Wellmerliing, Herman W., Bloomington
West, Olin, Chicago
Whalen, Charles J., Chicago
White, Cleveland J., Chicago
Wilkinson, C. E., Danville
Wineberg, Isaac H., Quincy
Winters, William L., Highland Park
Wood, Willard L., Chicago
Woodward, W. C., Chicago

(Registered Tuesday)

Allen, Thomas D., Chicago
Armitage, R. B., Lawrenceville
Ashmenckas, Natalie, Chicago
Barnet, Irving F., Chicago

Barth, Earl E., Chicago
Blatt, Maurice L., Chicago
Brown, Ira, Chicago
Buchanan, D. N., Chicago
Burstein, H. J., Decatur
Carlisle, Wm. T., Chicago
Caro, M. R., Chicago
Cassidy, R. M., Oak Park
Coulter, John S., Chicago
Crawford, W. L., Rockford
De Bere, C. J., Chicago
Dice, H. F., Ridgefarm
Dvorak-Theobald, Georgiana, Oak Park
Fara, Frank J., Cicero
Fovargue, I. P., Chicago
Gailey, W. W., Bloomington
Gradle, Harry S., Chicago
Greenwood, G. J., Chicago
Gustafson, Olga F., Chicago
Halley, Edmund P., Decatur
Harris, E. A., Harvey
Houston, S. D., Polo
Hawkinson, Robt. J., Chicago
Head, Jerome R., Chicago
Heinemeyer, F. VaV., Rockford
Hesseltine, A. Close, Chicago
Hubbard, S. M., Ridgefarm
Huggins, Ben H., Evanston
Klaas, Rosalind, Chicago
Kreuscher, Philip H., Chicago
LaRue, R. E., Erie
Litvin, Nina, Chicago
Martin, Clement L., Chicago
Michel, Herbert L., Chicago
Michell, George W., Peoria
Milligan, J. Donald, Elgin
Needels, Louis J., LeRoy, Martinez
Nelson, Tell, Evanston
Norris, F. A., Jacksonville
Nowakovsky, Sophie T., Chicago
Ormsby, Oliver S., Chicago
Pope, Chas. Evans, Evanston
Poncher, Henry G., Evanston
Rich, Ciney, Decatur
Robertson, Oswald H., Chicago
Ross, George W., Watseka
Schmid, H. J., Harvard
Simonds, J. P., Chicago
Smith, G. B., Godfrey
Snorf, Lowell D., Chicago
Stephan, Carl T., Chicago
Stillians, A. W., Chicago
Stoll, C. G., Sumner
Sweaney, Henry C., Chicago
Templeton, F. E., Chicago
Thompson, Willard O., Chicago
Vaughn, Arkell M., Chicago
Weir, E. W., Atwood
Wescott, Virgil, Chicago

(Registered Wednesday)

Akers, E. David, Chicago
Allen, Lee G., Litchfield
Apfelbach, George L., Chicago
Barrett, Channing W., Chicago
Binswanger, H. F., Chicago
Bollaert, F. E., East Moline
Bucy, Paul C., Chicago
Chainski, Ed. L., Chicago
Davenport, Frank N., Moline
Fovargue, Irwin P., Chicago
Goldberger, S. M., Chicago
Hall, George W., Chicago
Howard, H. C., Chicago
Hershfield, Alex S., Chicago
Hoeltgen, Maurice M., Chicago
Kunde, M. M., Chicago
Levinson, Sidney D., Chicago
Lieberthal, Frederick, Chicago
Mars, Hartley F., Chicago
Mock, Harry E., Evanston
Newquist, M. N., Chicago
Pollock, Frederic, Chicago
Quint, Harold A., Evanston
Roome, Norman W., Chicago
Schacht, Frederick W., Chicago
Shulian, O., Frank, Quincy
Smith, Durand, Plano
Stenhouse, E. E., Chicago
Williams, V. Trivoli
Willis, David A., Chicago

(Registered Thursday)

Hirsch, Edwin W., Chicago
Holmberg, Clara E., Springfield
Kullman, Paul J., Chicago
Mitchell, James H., Chicago
Sadler, Lena K., Chicago
Sadler, William S., Chicago
Weinstein, M. L., Chicago

The following Illinois Physicians participated in a Scientific program (we name them disregarding alphabetical arrangement).

Ernest E. Irons: Opened discussion on paper by Martin H. Dawson and Ralph H. Boots of New York on "The Treatment of Rheumatoid Arthritis."

Daniel B. Hayden and Edward L. Chainski: "Acute Glomerular Nephritis with Special Reference to the Course and Prognosis": A Study of 150 Cases (Lantern Demonstration).

Joseph L. Baer: "The Cervix Uteri in Obstetrics and Gynecology." (Lantern Demonstration.)

Charles Edwin Galloway: Color Photography of the Uterine Cervix. (Lantern Demonstration.)

Arthur H. Curtis: "Anatomic Factors in the Pathogenesis and Treatment of Urethrocele and Cystocele." (Lantern Demonstration.)

Fred L. Adair, H. Close Hesseltine and Lucile Hac: "Experimental Study of Behavior of Sulfanilamide." (Lantern Demonstration.)

Henry Schmitz, Herbert E. Schmitz and John Francis Sheehan: "The Action of Measured Doses of 800 Kilovolt Roentgen Rays on Carcinomas of the Uterine Cervix."

Harry S. Gradle: Discussed paper by Phillips Thygeson, New York, and Polk Richards, Albuquerque, N. M., on subject, "The Nature of the Filtrable Agent of Trachoma." (Lantern Demonstration.)

Watson W. Gailey, Jr., Bloomington, Ill.: Opened discussion on paper by Conrad Berens and Donald W. Bogart of New York on subject: ("Postoperative Complication of Cataract Operations.) (Lantern Demonstration.)

Georgiana Dvorak-Theobald, Oak Park: Discussed paper by Theodore E. Sanders, St. Louis, on subject: "Mixed Tumors of the Lacrimal Gland." (Lantern Demonstration.)

Austin A. Hayden: "Recent Developments in Audiometers and Hearing Aids." (Lantern Demonstration.)

Max Cutler: Discussed paper by Chevalier Jackson and C. L. Jackson, Philadelphia, on subject: "Cancer of the Larynx: Analysis of Results of 800 Cases." (Lantern Demonstration.)

Joseph C. Beck: Opened discussion of paper by Durwin H. Brownell and I. Jerome Hauser, Ann Arbor, Michigan, on subject: "Malignancy of the Nasopharynx." (Lantern Demonstration.)

Oswald H. Robertson: "Recent Studies in Experimental Lobar Pneumonia." (Lantern Demonstration.)

James A. Conner: "Treatment of Pertussis." (Lantern Demonstration.)

Mandel L. Spivek: "A Criticism of Present Day New-born Nursery Practice."

Katsuki Kato: "Hematologic Indexes in Normal and Anemic Infants and Children." (Lantern Demonstration.)

Orville E. Barbour, Peoria, Ill.: "Clinical Effects of Whole Adrenal Gland by Mouth." (Lantern Demonstration.)

M. Herbert Barker: "Sodium Chloride Tolerance in Chronic Nephritis with Some Observations on Potassium and Sulfate Ions." (Lantern Demonstration.)

Edwin F. Hirsch: "Arterial Occlusions with Aseptic Necrosis of Bones." (Lantern Demonstration.)

Samuel M. Feinberg, Chicago, and O. C. Durham, North Chicago: "Annual Variations in Seasonal Aspects of Mold Allergy: A Clinical and Atmospheric Study of Over Three Years." (Lantern Demonstration.)

Israel Devidsohn: "A Method for Differentiation of Blood Groups A1 and A2." (Lantern Demonstration.)

Henry C. Sweany: "X-ray Diffraction Analysis as Applied in Pneumoconiosis." (Lantern Demonstration.)

A. A. Low: Opened discussion on paper by Richard H. Young and G. Alex. Young, Omaha, on "Treatment of the Psychoses with Hypoglycemia and Induced Convulsions." (Lantern Demonstration.)

D. N. Buchanan and Percival Bailey: "Brain Tumors in Infancy and Childhood."

Archibald L. Hoyne: Discussion on paper by Josephine B. Neal, New York, on subject of "The Treatment of Acute Infections of the Central Nervous System with Sulfanilamide." (Lantern Demonstration.)

R. P. Mackay: "Chronic Adhesive Spinal Arachnoiditis: A Clinical and Pathologic Study." (Lantern Demonstration.)

Clark W. Finnerud, Chicago, and Marion B. Sulzberger, New York: "Industrial Dermatoses: Remarks on Criteria for Diagnosis and on Future Immunologic Methods of Prophylaxis." (Lantern Demonstration.)

Marcus R. Caro: Opened discussion on paper by J. W. Tedder, New Orleans, on subject: "The Toxic Skin Manifestations Following Sulfanilamide Therapy." (Lantern Demonstration.)

Norman W. Roome: "The Visualization of the Adrenal Glands by Air Injection." (Lantern Demonstration.)

Philip Lewin: "Newer Concepts and Methods of Teaching Orthopedic Surgery." (Lantern and Motion Picture Demonstration.)

Edward L. Compere: Opened Discussion on paper by Charles F. Nelson, Beverly Hills, Calif., on "Factors to Be Considered in Bone Metabolism with Suggestions as to the Clinical Value of Vitamin D and Parathyroid Extract." (Lantern Demonstration.)

Harry E. Mock: Opened Discussion on paper by Walter G. Stern, Cleveland, on "Estimation of Disability After Injury." (Lantern Demonstration.)

Andrew C. Ivy: "The Effect of Smoking on the Activities of the Alimentary Tract." (Lantern Demonstration.)

Leo L. Hardt and John S. Coulter: "Studies on Treatment in Intestinal Tuberculosis." (Lantern Demonstration.)

Frederic E. Templeton and A. W. Marcovich: "The Value of Roentgenologic Demonstration of the Crater in Duodenal Ulcer." (Lantern Demonstration.)

Justin J. Stein, Hines, Ill.: "Apical Lung Tumors." (Lantern Demonstration.)

OUR SICK SHOULD BE CARED FOR BY PHYSICIANS, NOT BY SCHEMING POLITICIANS

America, June 25, 1938, has the following to say about political physicians: From England comes the story of a physician, appointed by the Ministry of Health under the "panel" plan, who smoked a cigarette at the bedside of a dying woman. On leaving, he demanded that the husband pay him two shillings six-pence for cab-fare. Incidentally, what he had diagnosed as cancer was, in fact, pneumonia.

We do not know whether this is a fair specimen of the manner in which socialized medicine works out in Great Britain. But the case sums up the apprehension of many in the profession and of the laity that it would probably work out in exactly this fashion (although on a larger scale) were it established in the United States.

As Dr. Irvin Abell, president of the American Medical Association for 1938-1939, reported at the Association's convention in San Francisco last week, we shall do well to examine with care those "socially-minded statesmen who would supply medical care at Government expense." The scheme promises much, especially to those in the low-income groups, but it may be accompanied, thinks Dr. Abell, by "a lowering of the efficiency, and perchance integrity, of part of the medical profession."

Members of the profession who oppose socialized medicine fear, as far as we can gather their position, that it will destroy the personal relationship which should exist between the physician and the patient, and that it will check medical progress. The physician in private practice knows that his success depends in very large part upon his assidulous care of his patient, and upon what the older physicians used to call "his bed-side manner," which simply meant his ability to inspire the sick man with confidence. About these points, the government-paid physician need not greatly care, for whatever happens to the patient his practice and his fee are assured.

We have suffered so much from the dead hand of bureaucracy in this country that the suspicion and distrust of the average physician whenever socialized medicine is mentioned can be easily understood. In our opinion, the suspicion and the distrust are well-founded. Certainly, the profession must cooperate with every agency in the community to supply adequate medical care for all and especially for the poor. But it must not be taken for granted that the best way, or the only way, of providing this needed care is through medical stations subsidized and controlled by the Government.

What bureaucracy can do when its blight falls upon any human problem with which the Government must deal, can be seen today in the administration of the WPA and similar Federal and State organizations for the relief of the needy. We shudder to think that a physician might be appointed not because of his ability to serve suffering humanity, but because of his skill in bringing out the votes at the last election. Our sick should be cared for by physicians, not by scheming politicians. Here is not the least serious of the problems to be solved by the advocates of socialized medicine.

THE YEN FOR MORE POWER — AND MORE TAX MONEY IS RUINING AMERICA

Merle Thorpe, in the August number of *"Nation's Business"* has the following comment on taxes, our number one problem. We quote in part:

While we are not certain of many things in this life, of this we are sure. When a nation expends the results of its labor in non-wealth producing enterprises through political agencies rather than in the development of new industries through the imagination and courage of its individual citizens, there can be no progress. Political spending makes for temporary employment of men; the other for continuous and increased employment of men.

Eighteen of the new industries developed here in the 50 years ending in 1930 employ today 9,000,000 men and women, nearly one-fourth of the total employed. The deflection of the people's savings from industrial ventures to political spending since 1930 has not added a single man or woman to a wealth-producing pay roll. During this period there have been a million men and women, exclusive of those on relief, added to political pay rolls. But this employment is overhead, not income producing.

It is the fashion today to speak slightingly of the founders of this government. It may be that our horse-and-buggy leaders were dumb, that they were just ordinary men. If that be so, they builded better than they knew. For they gave us little government and little government expense, leaving with the people a large percentage of earnings which voluntarily adventured into a thousand fields, under the stimulation of enterprisers, who in turn were "given every stimulus."

Little government expense meant little government meddling by bureaucrats. Little government expense did not permit Congress to pass on its law-making job, as by a Detroit assembly line, to bureaus, boards, commissions and authorities, all eager for more power—and more tax-money.

Our American manufacturer-author might paraphrase his British cousin of 100 years ago: America cannot hope to regain its industrial stride under the present immense burden of taxation.

MEDICAL ECONOMICS

H. M. Camp, M. D.
E. P. Coleman, M. D.
W. M. Hartman, M. D.
J. R. Neal, M. D.
I. H. Neece, M. D.

Edited by the Committee on Medical Economics
of the
Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois

R. K. Packard, M. D.
Ralph Peairs, M. D.
C. B. Ripley, M. D.
C. S. Skaggs, M. D.
C. E. Wilkinson, M. D.

Address all letters and communications to the Chairman.

The sequence of events since Senator Lewis of Illinois addressed the House of Delegates at the 1937 annual meeting at Atlantic City have verified the fact that he knew whereof he spoke and that planning affecting the medical profession was going on at Washington amongst the reformers. The multiplicity of articles in the lay press, as well as the criticism of the officers of the American Medical Association by special groups, such as the Committee of 430, have kept the spot light of criticism levelled on the medical profession. Then the Health Insurance plan of the HOLC, subsidized in part by government funds, showed that thought and planning were occurring with the sanction of the officials in Washington. All this should have brought home to the rank and file of the medical profession that the future of their profession was in jeopardy. But as usual most of us were too busy to give much time to the consideration of what was to be tried.

A surprisingly large per cent of the time of the House of Delegates at the last annual convention of the Association held in San Francisco in June was given to consideration of these problems, as all of you who follow the proceedings in the JOURNAL are well aware. But it left to a paper delivered to the House of Delegates by Dr. V. F. Draper, prepared by the Chairman of the Federated Departmental Committee to Coordinate Health and Welfare Activities, Miss Josephine Roche, to give official sanction to the fact that there was definite planning under way at Washington to regulate the care of the sick. The officers of the American Medical Association were invited to attend "A National Health Conference" at Washington on July 18, 1938, to discuss the problem. Although the address referred to was presented in executive session of the House it was released in Washington at the same time and was in the evening paper as soon as the House adjourned. The comments of the press were interesting and not all favorable to the medical profession. Particularly interesting was a special article in the same paper reporting a speech made at Washington the same day by Mrs. Eleanor Roosevelt at a national 4H Club Camp, in which she was quoted as saying: "Socialized medicine is a new movement in medicine that is vital to the health and welfare of rural America. Some of you have heard vaguely about socialized medicine and health insurance, but many communities are prone to look on it as an experiment and say, 'we don't want any experiments tried on us.' If you think any experiment might help your community, do all you can to have it tried." The appearance of this speech in the same paper as the article by Miss Roche is a peculiar coincidence and shows a real cooperation and mutual understanding at Washington.

In the midst of all the comment on and criticism of the medical profession and the future of medical care in the United States, which appeared daily in the San Francisco press, and we must be just and admit that the criticisms were in the most part fair, it was refreshing to find tucked away in the columns of the *San Francisco Chronicle* the following: "Editor: Looking back through the years. I remember with gratitude and affection the kind doctors and surgeons who ministered to me and mine. They hardly realize what a place they have in our hearts—these members of the noblest profession of all. In my childhood days in Canada, they came when called through deep snow and winter cold. They respond to the call of the sick poor and help their patients regardless of whether they can pay or not. It is extremely interesting to read the reports of all that has been done by the medical profession as reported in accounts of the convention in San Francisco." —Madelon De Roche Saxon, Mill Valley. That shows there still remain those who are satisfied with the attempts of the medical profession to

care for the sick of this nation regardless of their status in life. It is encouraging to those of us who are opposed to governmental control of the medical profession.

The writer was in Vancouver, British Columbia, during the sixth Canadian Conference of Social Workers. Here as usual the speakers dealt at length with the number of people unable to pay for medical care, and the high cost of medical care, and ended up by insisting that the only solution of the problem was governmental control. It was interesting to note that the main speakers and critics were a consulting actuary of an insurance company and a professor from the University of California, neither of whom was a physician.

Reports of the Annual Health Conference held at Washington on July 18 under the Chairmanship of Miss Josephine Roche, assistant secretary of the U. S. Treasury, above referred to have been fragmentary at the time this article is written. A few articles have appeared in the lay press and from them it appears that there was a decided difference of opinion as to the success of the proposed plan. We hope to have permission to reprint an article appearing in the *United States News* of July 25 on this subject, before the date this is submitted to the printer. It is the best article the writer has found on the Conference and coming from the pen of a lay writer should make a definite impression on every reader. Please read it carefully and think over what it means to the medical profession if the proposed innovations are started at this time. Success in one attempt will lead inevitably to another.

The Chairman of the Legislative Committee is to be congratulated on the fact that little of damage to the medical profession was passed at the special meeting of the legislature of the State of Illinois, free hospitals for the care of persons suffering from venereal disease would mean that similar arrangement would be demanded for cancer, heart disease and every other common disease. Every member should read the final report of the Chairman of this Committee, Dr. John Neal of Springfield.

The President of the Illinois State Medical Society has a short article in the column this month on the subject "Postgraduate Courses." This is a subject in which Dr. Munson has been interested for many years. Undoubtedly his plan will be presented to the Council of the Illinois State Medical Society at a future meeting. Read it over and let your Councilor know if you are interested in it.

E. S. HAMILTON,
Chairman.

POSTGRADUATE COURSE

During the coming year it is our purpose to continue the refresher or postgraduate courses downstate in Obstetrics and Pediatrics.

In connection with this, there is a very definite sentiment downstate, particularly with the young and middle-aged men in the practice of medicine for a widening of this postgraduate instruction to include some of the other branches of medicine. This is now being carried out very satisfactorily in some of the other states.

It is found that a small per cent of practitioners and only at very infrequent intervals, take time away from their practice and the expense which is incurred in postgraduate work. The reasons given for failure to engage in postgraduate study for practitioners generally is the inaccessibility of the courses convenient to their homes, and an insufficiently wide range of subjects to be of benefit to the general man.

As stated before the loss of income on account of leaving their practice for the length of time involved, the lack of practicability in the appeal of the programs offered, and a definite indifference on the part of some of the medical men on account of lack of stimulation and medical, contact, are other reasons for the inability of practitioners to take postgraduate work away from home.

These courses should be planned to be of suitable length and practicability of subjects that are met with by the general man every day and yet to include all the variation in change of methods of management and treatment of such diseases. The probable cost to the practitioners is arranged in most of the states to be without cost, and in others a small fee is charged for matriculation. As arranged for the refresher courses last year, these could be presented in each district at the most accessible point.

It has been fully agreed that the science and art of medicine cannot be brought to its fullest accomplishment in the undergraduate program of study. Undergraduate training and knowledge necessarily develops with practice and ex-

perience. But if the man in general practice is to maintain a reasonable knowledge of the advancement of medicine and its application to everyday practice, he must continue to have the opportunity for educational and clinical instruction.

The postgraduate work is referred to as a course in teaching to help the practitioner, particularly in general medicine to achieve the reasonable ability to use the now known medical knowledge in his every day practice. Graduate medicine is defined to prepare those physicians for teaching and research by longer courses of study. The postgraduate program offers the necessary educational opportunity to maintain the specialist at a desirable level of efficiency.

Special societies in medicine and surgery give one an opportunity yearly or bi-yearly to evaluate these advances that are made in medicine, and with postgraduate or direct application of these methods, keeps a small per cent particularly of instructors and teachers, fully in touch with new ideas of medical advancement.

In 1934 the Michigan State Medical Society made a study by a series of questions to determine the amount of postgraduate work done by practitioners of medicine. Of the 439 replies received from practitioners, 29% had engaged in postgraduate study for a period of a month or less in ten years; 40% had attended less than six medical meetings, and 15% had attended none.

The reasons given here as I mentioned before were: Cost, loss of time away from home, and inaccessibility.

This work will in no way interfere with the work of the Educational Committee of the State Society, any more than the refresher courses that were given by the State last year in Obstetrics and Pediatrics. In fact it will only prepare the practitioner for a better understanding of the talks, lectures and discussions given by men sent out by the Scientific Service Committee in a general way throughout the year.

If a postgraduate medical school is to be established in a teaching center it will in no way conflict with the plan of postgraduate work to be carried to the physician throughout the State, but will only stimulate the interest and attendance of the postgraduate school and prepare the stuff, by practice and experience to furnish the instructors for these extramural postgraduate courses throughout the State.

Quoting James D. Bruce of the Medical Department, University of Michigan: "Each community should be as nearly as possible a self-sufficient center of medical service, and to this end a postgraduate teaching program must permit attendance with a minimum loss of time and at a minimum expense."

In these postgraduate courses, some of the things emphasized by the State Board of Health for special consideration are the management and treatment of syphilis in all its stages, particularly as emphasized in the present campaign on syphilis, as well as the typing of pneumonia and serum treatment.

SAMUEL E. MUNSON.

Correspondence

MATERNAL WELFARE COMMITTEE

The Council of the Illinois State Medical Society decided at the recent organization meeting that the Maternal Welfare Committee of the Illinois State Medical Society should continue intact. They were very well pleased with the progress of the program to date. The activity was very slight in certain counties. Perhaps this has been due to the haste of early organization where men selected as County Chairmen were too busy to devote sufficient time to popularizing the county program. It is hoped that where this condition exists that the officers of the county medical societies will assist in selecting a man who will be active and attempt to handle this situation in his own county.

The report of the chairman to the House of Delegates will be sent to each medical society to be read. Also, being the beginning of a new year, the local society will be asked to select a new county chairman for the ensuing year.

District meetings will be continued beginning the early part of September in order that the new county chairman may receive instruction on the program and new problems which are constantly arising may be discussed.

This Committee has been asked to prepare a "Minimum Standards for Hospitals Rendering Obstetrical Care." These plans have been drafted and will be presented to the Governor's Advisory Committee for approval.

The registration at the summer courses is good but it is below what had been hoped for. These courses, because of the minimum cost, should be an incentive to physicians throughout the state to register if possible.

T. B. WILLIAMSON, M. D.,
Chairman.
JOHN F. CAREY, M. D.,
Secretary.

THE AMERICAN MEDICAL ASSOCIATION MAKES A SURVEY

Chicago, Illinois.

To the Editor: The American Medical Association has asked the state and county societies to make a survey of the entire country to determine the needs for and the cost of medical care. Two questions are to be answered by this survey. Is there any community not sufficiently supplied with physicians? Is there any community where the poor are unable to obtain medical care? If these needs exist, it will become the duty of the state and county societies to discover means to supply physicians and other medical care for the relief of those needs. Questionnaires will be sent to physicians, dentists, health departments, colleges, nurses, charitable organizations and employers of labor.

When the American Medical Association was founded in 1847 the population of the United States was approximately twenty million people. There were few, if any, corporations. Industrial concerns as we know them today did not exist and a large part of the population lived on farms and earned enough to support their simple wants. The poor and helpless were for the most part taken care of by their families and friends and comparatively few became public charges. Medical schools were few in number and the required time of attendance before graduation was a minimum of two terms of six months each. At that time students who could afford to do so went to Edinburg or Paris for their medical education.

With the founding of the American Medical Association, medical education in the United States moved forward until it surpassed that of Europe. Better education for medical students and doctors was the chief aim of the Association. At that time economic problems for doctors did not exist. The cost of medical care was an unheard of problem. Nursing was done by the family of the patient, supplemented by willing neighbors. There was no charge for this service. The number of the doctor's visits was governed by the gravity of the case and he was paid in currency or merchandise for his visits. In the farming communities he often took his pay in the form of farm produce, and in both town and county were added the gratitude of the patient and family. It is of interest to note that as the ability of the doctors to give better service increased, the pay increased in spots but the gratitude of the city public universally diminished.

Until comparatively recently the American Medical Association did not concern itself with the economic problems of the family physician. Its chief concern was, very properly, better doctors, better diagnosis, better remedies and better hospitals. With increase in medical education came control of the diseases that had been the main support of the doctor. In Chicago there are doctors who never saw a case of typhoid fever and thousands who were never called to treat a case of typhoid fever. As the doctor's knowledge progressed his demand for better nursing became urgent and that most important aid in the care of the sick, the trained nurse, caused the first jump in the cost of medical care. With the advent of modern surgery and modern medicine, hospitalization became the order of the day. Laboratory methods became a necessary diagnostic measure and technicians became as great a necessity as nurses. Expensive machines for diagnosis and treatment further pyramided the cost of illness.

Then into the field came the social worker, an added expense to the care of the sick. That was the straw that broke the camel's back and a goodly part of the burden was shifted to the backs of taxpayers and the employers. The Workman's Compensation Law brought free medical service to the employe.

The next thing in the evolution of medicine was teaching the public to believe that the pauper was entitled to the same type of medical care as that given to the millionaire and a large part of the public believe this to be the case. Then said the middle class, "If this is so, what about us? We cannot pay millionaire fees, so the wise thing for us to do is to take our babies to the infant welfare stations and take ourselves to the

free and part pay clinics." In spite of the great progress that has been made in American Medicine somebody charged that our obstetrics are bad and this country is not a safe place for a woman to have a baby. Now comes the statement that the public is not adequately supplied with doctors.

A number of physicians, some of whom practice medicine as an avocation, are now telling the public that it can no longer afford to depend upon private practitioners but for safety all must go to medical centers where they can be cared for by specialists and the burden of cost for the poor and the middle class must be borne by the state in some form of health insurance. In this campaign the doctor of independent means is joined by a number of young physicians who want the seeming security of a government job, regular hours, light work, and hoped for large salaries.

In order to find, if possible, a correct answer to the charge that the American public is not getting sufficient medical care, the American Medical Association is making this survey that will ask for information from physicians, hospitals, nurses, social workers, charitable organizations, dentists and employers of labor. This survey is being undertaken with an open mind and will be of as much value to the business man and other citizens as it is to the medical profession. In view of the way business has been taxed and harrassed for reports it is not unlikely that businessmen may be a little reluctant to meet with the request of the American Medical Association which, of course, cannot command their compliance as can the government. It will be part of the doctor's duty to promptly fill in and return his own questionnaire and in addition explain to his business friends the value of promptly complying with the request of the American Medical Association in this much needed survey.

EMMET KEATING.

BARTERING IN MEDICINE

Urbana, Illinois, July 25, 1938.

To The Editor:

The object of this comment is to call the attention of the local profession to a practice that has crept into the field of medical practice in Champaign County. I refer to the commercialization of medicine by certain ambitious practitioners who are evidently desirous of monopolizing the referred or consultation work of young physicians entering upon practice in the smaller country towns.

The method as it has been brought to my attention is somewhat as follows:

A vacancy in practice occurs in one of the outlying towns by death or removal of the local physician. The ambitious M. D. in question, eager to clinch the referred work from that town, anticipates the other fellow and perhaps the undertaker by having some young, well equipped M. D., as yet unschooled in medical ethics, advised of the situation and on the grounds ahead of others who may have this location in view. This at once smacks of the unethical practice of fee-splitting.

Such a plan deprives a community of its right to have its doctor free and unbiased in his judgment and in his practice among them; and also of their right of choice of a consultant in case of serious illness in a family, requiring consultation. I have known personally of a number of illustrations bearing out this undesirable feature of such practice. The people in question complaining that they had asked for their choice of consultants, but were told by the local physician that arrangements had been made to have Dr. So and So to consult or operate as the case required. Doubtless many of you can cite such instances. That such methods are hurtful to medicine requires no argument.

The young man entering upon practice under such circumstances is inexperienced in practice and medical ethics and is apt to receive a certain blight unconsciously from this sort of an alliance. Commercialization of this or any other type in medicine is not conducive to that broad and humane development of the young physician establishing himself in a community.

In other words it is wrong for a community to be deprived of its privilege of choice of who shall serve them in matters so important as serious illness in their homes and it is also apt to prove hurtful to the young physician whose unbiased development and finer medical judgment are endangered by such practice. It would therefore seem that such methods of practice are dangerously near if not entirely unethical.

JAMES S. MASON, M. D.

FINAL LEGISLATIVE BULLETIN

1st and 2nd Special Sessions, 60th General Assembly, 1938

With bitter acrimony freely and eloquently proclaimed by factional leaders in House and Senate as a closing malediction, the first and second special sessions of the Sixtieth General Assembly simultaneously ended sine die in the small hours of the night of June 30th. In spite of an eleventh hour rally toward party harmony, many members of both chambers went home smarting from the verbal salt that was poured without stint into the political wounds of all and sundry.

Rarely if ever before has so much bitterness, factional strife, heroic efforts at compromise, high pressure lobbying and confusion characterized a session of the Illinois Legislature. Under these circumstances almost anything might have happened. Indeed the legality of some of the more important bills that passed has been questioned by the Attorney General to whom all bills passed by the General Assembly are referred by the Governor for an opinion as to constitutionality.

Victory for Sanity as Venereal Disease Bill Fails. Amid this confusion, Senate Bill No. 22, which would have opened the doors to State medicine and which seemed sure of passage, was ignobly defeated on the eve of adjournment by the alertness and vigorous efforts of the Illinois Medical Society. This Bill would have permitted communities to levy a tax, set up an organization and build hospitals for the *FREE* treatment of any and all patients suffering from venereal diseases. *Section* 4 of the Bill provides that

"Persons afflicted with venereal diseases, inhabitants of any such city or village, shall be treated free. Said treatments and prevention activities connected therewith shall be given and carried out under the supervision of physicians and *others employed* under authority of this Act."

The intent was plainly to employ physicians as municipal office holders to engage in regimented medical practice. It would have established, moreover, another independent taxing agency and multiplied the number of official agencies operating in the field of medicine. Good public health administration requires the consolidation and unification rather than the diversification and multiplication of activities. Carried to a logical conclusion, the principles in Senate Bill No. 22 would ultimately create independent official agencies to combat cancer, rheumatism, heart disease, nephritis, etc.; in short State medicine under a patently wasteful administrative system.

The history of Senate Bill No. 22 in the Legislature showed evidence of powerful lobby support. It was introduced without advice or consultation from State public health officials or representatives of the State Medical Society, passed the Senate without a committee hearing, was referred to the House Committee on Public Welfare instead of on the Judiciary as would properly have been done, was approved for passage by the committee on Public Welfare without a public hearing and reached the stage of *second reading* after a factional compromise agreement in the House which greatly favored the passage of all bills that had reached *second reading.*

Energetic action by the members of the Medical Society at this stage flooded the House members with wire communications from physicians throughout the State and caused defeat by a favorable vote on a motion to *"strike out the enacting clause."* This victory was achieved in the face of desperate efforts by the proponents of the Bill, expressed in a telegram signed by Dr. Louis E. Schmidt, and sent simultaneously to all House members. This telegram read as follows:

"Hon. ————, care of House of Representatives, Springfield, Ill. Senate Bill 22 for control prevention and treatment of venereal disease is of greatest importance to health of citizens of Illinois. An untold amount of suffering, sickness and misery results from these diseases and adds a great financial burden to State for keep of afflicted persons in institutions. This bill if enacted will do a great detal to alleviate suffering of those so afflicted. In interest of humanity I beg of you that when this bill is brought before your honorable body you vote for its passage so people of municipalities may have opportunity to express their wishes at a referendum. (Signed) Louis E. Schmidt."

Success against this pernicious Bill demonstrated afresh and in no uncertain terms that the medical profession of Illinois, so long as its attitude is sound and rational and in the public interests as it has been in the past, can exercise a powerful and determining influence over the course of legislative matters in medical affairs. A generally uniform attitude with respect to principles, militant and concerted action and constant alertness at Springfield make up the political prescription for the preservation of a healthy medical profession and the high standards of practice which the public interests require.

Other Bills. Of special interest was House Bill 47 which significantly eliminated the *"professions"* from a proposed occupational tax on personal services not now covered by the sales tax. While this Bill failed of passage the exclusion of *"professions"* from its provisions represents a substantial gain in the attitude of the Legislature toward physicians in particular. A measure that gained favor in the regular session of the 60th General Assembly, SB 392, would have imposed a tax of one-third of one per cent on gross incomes, including those of physicians. This was fought vigorously at the time by the medical profession through your Legislative Committee.

In opposing such tax levies the medical profession has no desire to shirk its full share of the public burden. Physicians are subject to the Federal income tax, they give generously of their time and talent to the poor among their patients and they provide medical care at greatly reduced fees to the impoverished who are eligible for medical care at public expense. So long as this situation prevails it is felt that new taxes on physicians would be out of line.

Bills Passed. A *drivers license* bill which conforms in principle to the uniform law recommended by safety organizations was passed at the last minute after a superficial factional agreement. In the confusion the Sen-

ate failed to vote on the appropriating section, leaving that portion of the law of doubtful legality. However, the law will not become effective until May 1, 1939, so that emergency appropriations in the next regular session are possible. Issuing licenses rests with the Secretary of State while examination for licenses is reposed in the State Highway Division, this being the basis of compromise. No examination is required of present drivers of legal age who obtain licenses prior to May 1, 1939, at 50 cents for 3 years.

SB 16 *and HB* 36 provide, respectively (1) for commitment to State institutions of sex offenders about to be released from penal servitude who are found upon examination to be either insane or feebleminded and (2) the commitment and detention of criminal sexual psychopathic persons.

HB 26 enables counties of less than 500,000 operating tuberculosis sanitariums under the law to issue bonds for constructing or improving a county tuberculosis sanitarium.

SB 37, 38 *and* 39 relate to housing projects and aim at providing for the acceptance of Federal funds for that purpose. They were supposed to apply only to an area of Chicago but appear to carry a "joker" clause that applies to downstate cities also.

SB 53 authorizes Illinois municipalities to accept Federal grants and loans for public work projects.

HB 80 appropriates $1,000,000 and creates a State Board of Education to apportion these equalization funds so that certain public schools may operate on a higher standard next year.

HB 4 gives State Department of Public Welfare authority over selection of county superintendents of public welfare.

Several bills providing for the financing of relief by diverting gas tax funds, appropriating available money in the treasury and extending the 3 per cent sales tax were enacted. The Emergency Relief Administration was given a degree of supervision over expenditures of funds locally.

Legislative Outlook. Although some of the most important legislation embraced in the call for the special sessions failed—especially that relating to a constitutional convention and reform of the State's public educational system, it is unlikely that another special session will be called this year. In view of factional strife, another special session prior to the November election would be poor political strategy. The imperative financial needs for the remainder of the year have been provided. After the November election, only an urgent emergency would justify a special session since the next regular session will meet in January.

Probably most of the medical legislative problems will be opened again, old wine in new bottles perhaps, when the regular session convenes.

Mather Pfeiffenberger, M. D.,
M. J. Hubeny, M. D.,
John R. Neal, M. D., Chairman,
Legislative Committee.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

Officers for 1938-1939

President—Mrs. William Raim, 178 N. Euclid Ave., Oak Park.

President Elect—Mrs. Charles C. Winning, 763 Vogel Place, East St. Louis.

1st Vice Pres.—Mrs. John A. Cousins, 5844 Stony Island Ave., Chicago.

2nd Vice Pres.—Mrs. Harold Swanberg, 1680 Main St., Quincy, Ill.

3rd Vice Pres.—Mrs. Corwin S. Mayes, 1706 Noble Ave., Springfield, Ill.

Corresponding Sec.—Mrs. Reid Owen Howser, 304 N. Lombard, Oak Park, Ill.

Recording Sec.—Mrs. Elven J. Berkheiser, 421 Melrose St., Chicago.

Treasurer—Mrs. E. C. Beatty, 621 Lincoln, Pontiac, Illinois.

Standing Committees

Organization—Mrs. Charles C. Winning, 763 Vogel Place, East St. Louis.

Press and Publicity—Mrs. C. Otis Smith, 1012 Pleasant St., Oak Park, Ill.

Legislation—Mrs. Corwin S. Mayes, 1706 Noble St., Springfield.

Program—Mrs. C. C. Kane, 8521 State St., East St. Louis.

Revisions—Mrs. R. K. Packard, 6901 Paxton Ave., Chicago.

Printing—Mrs. Homer O. Dolley, 304 E. Empire St., Bloomington, Ill.

Public Relations—Mrs. Charles Segal, 5217 Greenwood Ave., Chicago.

Archives—Mrs. F. L. Heck, 1425 Juneway Terrace, Chicago.

Finance—Mrs. F. P. Hammond, 6020 Drexel Ave., Chicago.

Hygeia—Mrs. A. Gareiss, 6032 S. Whipple St., Chicago.

Hostess—Mrs. A. H. Brumback, 1503 Jackson Blvd., Chicago.

Benevolence—Mrs. Herbert B. Henkel, 2135 Wiggins Ave., Springfield.

Parliamentarian—Mrs. Clarence G. Goodwin, 2629 E. 74th St., Chicago.

Councilors

1st District—Mrs. A. E. McCornack, 265 Hamilton Ave., Elgin.

2nd District—Mrs. C. R. Bates, Ladd, Ill.

3rd District—Mrs. J. P. Simonds, 25 E. Walton St., Chicago; Mrs. A. H. Brumback, 1503 W. Jackson St., Chicago; Mrs. Lucius Cole, 1117 Lathrop Ave., River Forest.

4th District—Mrs. Kenneth C. Baker, 1225 N. Cherry St., Galesburg.

5th District—Mrs. Harry Otten, 1417 Park Ave., Springfield, Ill.

6th District—Mrs. Walter Whitaker, Main St., Quincy, Ill.

7th District—Mrs. Thos. D. Laney, 2111 Main St., Salem, Ill.

8th District—Mrs. Gerry Brown Dudley, Charleston, Ill.

9th District—Mrs. E. W. Burroughs, 129 W. College, Harrisburg, Ill.

10th District—Mrs. Henry H. Hurd, 1360 N. 42nd St., East St. Louis, Ill.

11th District—Mrs. V. M. Seron, 1806 N. Williams St., Joliet, Ill.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

Report of the Convention of the Woman's Auxiliary to The American Medical Association

It is indeed inspiring to attend a National Convention. By so doing we realize the actual scope of our work—that it is not limited to our own immediate circle, but is truly national in character. There are forty-one (41) states organized with a total membership of 20,203. The registration at the convention was 1,184. The Illinois representation consisted of Mrs. Rollo K. Packard and Mrs. James P. Simonds, members of the National Board, Mrs. A. M. Vaughn, Mrs. John R. Harger, Mrs. P. H. McNulty, Mrs. H. Close Hesseltine, Mrs. Edwin Hirsch, Mrs. F. E. Bollaert, Mrs. Herbert B. Henkel, delegates and Mrs. William Raim, State President. In addition there were a number who registered as guests.

Sunday afternoon, June 12, reverberations of the coming event were sounded in the lobby of the Fairmont Hotel as the first arrivals made their appearance and were greeted and registered. At 9 a. m. Monday morning Mrs. Augustus S. Kech, the president, called a meeting of the National Board. This was followed by an informal luncheon for Board members. In the afternoon there was a short Board meeting. Tuesday, as the formal opening of the Convention was at 9 A. M., at this time Mrs. Clifford A. Wright, President of the California State Auxiliary, gave the welcoming address. Mrs. Rollo K. Packard of Chicago responded to this welcome with very gracious words. The "In Memoriam" service followed. Mrs. Kech then gave her president's message and started with the business of the convention, which consisted of reports of officers and chairmen. At this session the Election Committee and Nominating Committee were appointed. Tuesday afternoon was left free. Wednesday morning the meeting reconvened and at this time the State presidents gave their most interesting reports. We were very happy that Mrs. Herbert B. Henkel, our past State President, was there to read her report, a report which we felt did credit to Illinois and exemplified the effort which Mrs. Henkel had put forth in the past year. Then followed the report of the Nominating Committee and it certainly was a tribute to the sterling qualities of our own Mrs. Packard that she was selected as President-Elect without a dissenting vote. Mrs. James F. Percy of California installed the new officers. Her apt phrases and knowledge of the proper thing to say at the right time made this a very outstanding ceremony. Wednesday afternoon was devoted to a combined Program and Public Relations Conference at which time Dr. W. W. Bauer and Mrs. A. Haines Lippincott spoke.

The keynote of the Convention and the keynote for the year's work was struck by Mrs. Augustus S. Kech when she introduced the following resolution:

WHEREAS, There is much propaganda in the daily press and in lay periodicals and magazines concerning the socialization of medicine;

WHEREAS, It is one of the duties of members of the Auxiliary to bring to the lay public the answer of the medical profession to the misleading statements which such propaganda contains;

WHEREAS, In order to perform this duty intelligently the members of the Auxiliary must themselves be informed of the viewpoint of the medical profession; and

WHEREAS, Such information can best be given to the members of the Auxiliary by their medical advisors and by reading the sections devoted to Medical Economics in the State Medical Journals and in the organization section of the Journal of the American Medical Association;

THEREFORE, BE IT RESOLVED, That in accordance with the repeated suggestion of Dr. Irvin Abell, president-elect of the American Medical Association, that the Woman's Auxiliary to the American Medical Association recommends to and urges upon the presidents of auxiliaries to State Medical Societies the organization in all county auxiliaries of study groups to be concerned with the dissemination of accurate knowledge concerning the harmful effects of present social and economic movements upon the practice of medicine.

To make this a very happy and enjoyable affair as well as a business one the ladies of California had evidently worked long and zealously. They even had got on the right side of the weather man as the sunshine and clear blue skies made San Francisco a lovely place indeed, a place where we would have liked to tarry for a longer time than the period of the convention. Monday afternoon we were given the choice of two sight-seeing trips around San Francisco, one taking in the city and the other out to the University of California where the Alameda County Woman's Auxiliary were hostesses at a lovely tea at International House. To those athletically inclined were given the privileges of golf, tennis, horseback riding and swimming. In the evening a Chinese dinner and a trip through San Francisco's well known Chinatown was arranged.

Tuesday's activities started with a Southern breakfast honoring Mrs. Kech. At this time Doctors J. H. J. Upham, President of the American Medical Association; Irvin Abell, President-Elect of the American Medical Association, and A. T. McCormick of Louisville, Kentucky, were introduced and each gave a brief, interesting talk. At 12:30 P. M. we were taken by boat to Treasure Island, the site of the San Francisco Fair in 1939, where a buffet luncheon had been arranged. Tuesday evening was left free in order that the ladies could attend the opening of the General Session of the American Medical Association at the Memorial Opera House, Civic Center, if they so desired.

We looked forward to Wednesday's luncheon with a great deal of anticipation, because of its intriguing title,

"The Aloha Luncheon." This luncheon was in honor of Mrs. Charles Tomlinson, the President-Elect, and presided over by Mrs. Kech. Dr. Walter Donaldson and Dr. Irvin Abell were the guest speakers. Dr. Abell again expressed faith in the Auxiliary and his belief that the women can be an outstanding factor in aiding the cause of the medical profession. He strongly advocated the organization of study groups for the study of socialized medicine and problems confronting the physician of today. Then followed the beautiful lei ceremony and as the four past national presidents, Mrs. James F. Percy, Mrs. James Blake, Mrs. Robert E. Fitzgerald and Mrs. Augustus S. Kech (Mrs. Kech having just joined the ranks of the past presidents), were bedecked with the garlands of lovely natural flowers to the accompaniment of lovely Hawaiian music we could almost close our eyes and believe that we were in that land of romance and flowers.

Wednesday was fittingly closed by a fashion show and musicale at the San Francisco County Medical Society's building. This building is one of San Francisco's old historical homes and is a very imposing edifice located in one of the most exclusive sections of San Francisco. The beauty of the home was enhanced by the gorgeous flowers for which California is so justly famed and which had been in evidence all during the Convention.

Thursday we were again offered a choice of sight-seeing trips, either to Stanford University or to Muir Woods, one of California's famous Redwood Groves. From four to five P. M. a musicale was held in the Tapestry Room of the Fairmont Hotel.

The social activities of the Convention were climaxed by the "Bring Your Husband Dinner," followed by the American Medical Association President's Reception and Ball. Dr. and Mrs. Charles C. Tomlinson were presented with a lovely floral gift as this dinner, it being the occasion of their twenty-ninth anniversary. The speaker's table at this dinner is worthy of mention—decorated in white cala lilies and being one of the most beautiful I had ever seen.

Mrs. Kech is to be congratulated on the success of her convention which was largely due to her own able management and personal charm. We feel that in Mrs. Charles C. Tomlinson, our new national president, we have as equally an able leader and know that we will make great strides forward in the work we have set out to do.

Following is the list of the National officers, Directors and Committee Chairmen for the current year:

President—Mrs. Charles C. Tomlinson, Omaha, Nebraska.

President-Elect—Mrs. Rollo K. Packard, Chicago, Illinois.

First Vice-President—Mrs. Frank N. Haggard, San Antonio, Texas.

Second Vice-President—Mrs. David Thomas, Lockhaven, Pennsylvania.

Third Vice-President—Mrs. L. S. Merrill, Ogden, Utah.

Fourth Vice-President—Mrs. J. R. Westaby, Madison, South Dakota.

Treasurer—Mrs. E. E. Fisher, Portland, Oregon.

Recording Secretary—Mrs. J. C. Downing, Des Moines, Iowa.

One Year Directors—Mrs. August S. Kech, Altoona, Pennsylvania; Mrs. Carl Surran, Margate City, New Jersey; Mrs. John W. Burns, Cuero, Texas; Mrs. Leslie J. Paul, Salt Lake City, Utah.

Two Year Directors—Mrs. J. C. Geiger, San Francisco, California; Mrs. E. W. Veal, Jacksonville, Florida; Mrs. R. E. Mosiman, Seattle, Washington.

Archives—Mrs. Robert B. Homan, Texas.

Exhibits—Mrs. Ily R. Beir, New Jersey.

Finance—Mrs. James Blake, Minnesota.

Hygeia—Mrs. James D. Lester, Tennessee.

Legislation—Mrs. Arthur A. Herold, Arkansas.

Press and Publicity—Mrs. Jas. P. Simonds, Chicago, Illinois.

Printing and Supplies—Mrs. E. D. Lamb, Oregon.

Program—Mrs. V. E. Holcombe, West Virginia.

Public Relations—Mrs. Henry Raile, Utah.

Revisions—Mrs. James F. Percy, California.

Historian—(To be appointed by President.)

Parliamentarian—Mrs. Rogers N. Herbert.

Respectfully submitted,
(Mrs. William) Helen Raim,
President, Woman's Auxiliary to the
Illinois State Medical Society.

MISSISSIPPI VALLEY MEDICAL SOCIETY

Hannibal, Missouri, Meeting

The fourth annual meeting of the Mississippi Valley Medical Society will be held at the Hannibal-La Grange College, Hannibal, Missouri, September 28, 29 and 30. There will be 35 speakers and more than 50 lectures, clinical demonstrations, etc., the entire program being arranged to especially appeal to the general practitioner. Some features of the meeting are: An All-Chicago program the first day with 15 well-known teachers and clinicians participating; four short courses of instruction of four hours each as follows: (1) "Diagnosis of Cardiac Disease," by Dr. Chester M. Kurtz, Assistant Professor of Medicine, University of Wisconsin. (2) "Treatment of Common Fractures," by Dr. Arthur Steindler, Professor and Head of Department of Orthopedic Surgery, University of Iowa. (3) "Diagnosis and Treatment of Common Skin Diseases," by Dr. Cleveland J. White, Associate Professor of Dermatology, Northwestern University. (4) "Obstetrical Hemorrhages," by Dr. Frederick H. Falls, Professor and Head of Department of Obstetrics and Gynecology, University of Illinois, and Dr. William C. Danforth, Professor of Obstetrics and Gynecology, Northwestern University. Other guest speakers are Dr. I. S. Ravdin, Harrison Professor of Surgery, University of Pennsylvania; Dr. Karl Goldhamer, formerly Assistant Professor of Roentgenology, University of Vienna, etc. The annual banquet, September 29, will be addressed by Dr. Samuel E. Munson, President, Illinois State Medical Society; Dr. Dudley S. Conley, Immediate Past-President, Missouri State Medical Association; Dr. Edward M. Myers, Immediate Past-President, Iowa State Medical Society, and Governor Lloyd C. Stark, of Mis-

souri. There will be large technical and scientific exhibits. A complimentary Stag supper will be given on September 28. The meeting is open to all ethical physicians. Detailed program may be obtained from Dr. Harold Swanberg, Secretary, M. V. M. S., 209-224 W. C. U. Building, Quincy, Illinois.

RAILWAY SURGEONS TO MEET IN CHICAGO

Never before in the history of the Railway Surgeons have problems been so grave economically, or technique and treatment procedures of such import as they exist this year.

The 23rd annual meeting of the American Association of Railway Surgeons will be held at the Palmer House, Chicago, September 19th to 23rd, 1938.

This association includes members in practically every railroad company in the United States, as well as the separate group organizations, embracing railroad surgeons of the New York Central System; Southern Railway; Atlantic & West Point R. R.; Western Ry. of Alabama; Illinois Central System; Chicago Milwaukee, St. Paul & Pacific R. R.; Rock Island Lines; Chicago, Burlington & Quincy R. R.; Chicago and Northwestern R. R.; the Georgia Railway and other road associations.

An extremely interesting and highly profitable program has been arranged and all physicians and surgeons are invited to attend the sessions of this meeting as guests of the organization. There will be no registration fee to M.D. non-member guests.

In addition to the scientific exhibits, a technical show will be held, including the presentation of new equipment, advanced types of therapy, new pharmaceutical and biological products and the latest techniques in many branches of the profession.

A cordial invitation for you to attend is extended by Dr. Harvey Bartle, President of the Association. Complete program and information regarding the meeting and the exhibits may be secured by addressing Mr. A. G. Park, Convention Manager, the American Association of Railway Surgeons, Palmer House, Chicago, Illinois.

THE NEW AMERICAN MEDICAL DIRECTORY

Fresh from the press comes the fifteenth edition, dated 1938, of the American Medical Directory. It is a work embracing 2,565 pages and it stands supreme in its field as a storehouse of useful, accurate information. Among the data included are a complete analysis of the American Medical Association with a statement of its officers, its constitution and by-laws, and the various annual sessions which it has held. There is a detailed comparative statement of the numbers of physicians in the United States, its dependencies and Canada in all the previous editions of the Directory. The present edition lists 188,916 names, or 5,604 more than were in the Fourteenth Edition, issued in 1936. More than 100,000 changes have been made in the intervening two years, including 74,399 changes of address, the addition of 13,811 new physicians, and the removal of the names of 8,008 who have died.

Medical schools are listed, together with the essentials of an acceptable school and a concentrated history of all the medical schools in the country as well as graduate medical schools and foreign medical schools. There is an account of the National Board of Medical Examiners and a description of its work.

Repeated in this edition are the list of hospitals approved for training interns developed by the Council on Medical Education and Hospitals, together with the hospitals approved for residencies in the specialties, also the medical libraries, and the medical periodicals available in this country. There is a complete directory of national and interstate societies, and then classified lists of the members of special societies in various groups. Next come all the detailed data concerning each of the individual states, including late figures as to population, number of counties, the physicians, membership in the state medical society, the medical practice act of the state, health officers, officers of medical societies, and a directory of hospitals, sanatoriums and related institutions. Then for each state there is a listing by town or city of each physician, presenting at the same time all the data that have usually been included in the American Medical Directory.

The possession of this directory by any physician means that he has immediately available at his finger tips all the essential factual data concerning medicine and its practice in the United States ready for consultation with ease and facility and in a manner which no other similar work provides.

ROCKY MOUNTAIN SPOTTED FEVER INCREASES IN ILLINOIS

According to the *Bulletin* of the Department of Health Rocky Mountain spotted fever is on the increase. We quote:

To date this year 11 cases of Rocky Mountain spotted fever have been reported in Illinois against a total of 18 for all previous years. The infection of 1 of the 11 patients is known to have been imported from Florida, 4 were traced definitely to the bites of native Illinois ticks and the other six are believed to be of local origin. This evidence shows plainly that wood ticks, scientifically known as *dermacentors,* in Illinois have become infected and are spreading the disease to human beings. Of the 11 cases reported this year 4 occurred in Johnson county, 3 of these being in one family, and 1 each in Clay, Henry, Hamilton, McLean, Marshall, Morgan and Winnebago counties.

This evidence indicates that wood ticks distributed widely in Illinois are infected with the virus of Rocky Mountain spotted fever and are capable of communicating the infection to man. Symptoms of the disease in man develop after a lapse of from 2 to 14 days after a bite by an infected tick. Two of the cases reported this year have terminated fatally.

Ticks are usually infected from small wild animals, mostly rodents, and ticks in turn transmit the disease to man. The infection in ticks, moreover, can be transmitted from one generation to another.

Dangerous Tick Bites Avoidable. Dr. F. C. Bischopp, of the Bureau of Entomology and Plant Quarantine, Bulletin United States Department of Agriculture says, fear of the tick that carries Rocky Mountain spotted fever in the East need not keep people indoors. The tick's principal danger lies in its bite. Bites can be avoided by a few simple precautions. Dr. Bischopp emphasizes that failure to take precautions may have serious consequences. The East has an unusually large number of common dog, or wood, ticks this year—some being reported for the first time from vacant city lots. Even though only one in several hundred of these ticks may carry the fever virus, that one tick, which cannot be distinguished from the rest is an agent of death. No cure for Rocky Mountain spotted fever is known. Its mortality rate is one out of every five persons infected.

After passing the first part of its life as a small parasite on field mice, the tick waits in tall grass and underbrush for larger host animals. Cutting all grass and underbrush around houses and pathways, therefore, is one way to protect dogs and people from tick bites.

Keeping ticks from gorging themselves on the blood of dogs is another protective measure. A pair of forceps is all that is needed in removing ticks from dogs to which only a few have attached themselves. Dusting every five days with derris powder is necessary for dogs supporting a large number of ticks. Ticks should be handled with great care, Dr. Bishopp points out. Infection can be contracted by crushing a tick full of blood from an animal that has had the fever.

Boots laced up over trouser legs protect men walking through tick-infested areas, as ticks are usually picked up from grass or weeds close to the ground. Ticks always work their way upward before attaching themselves to their human host. The back of the neck and head are their favorite feeding places. Careful examination of heads, especially children's, at least twice a day, will reveal the presence of a tick in time to prevent a fatal bite. Examination of the whole body is necessary after exposure to ticks. An effective way to de-tick clothes is to place them in a vessel that can be tightly covered, and set on top of them a pan containing half a teacupful of carbon tetrachloride or carbon disulfide. A few hours of such fumigation kills the ticks.

"Don't wait for the doctor to remove a tick," Dr. Bishopp warns. The important thing is to get the tick off as soon as possible. Anyone can disinfect the bite and the surrounding tissues by inserting into the exact spot where the tick was attached a round toothpick that has been dipped in iodine and drilling it in slightly.

The American dog tick is widely distributed throughout the United States east of the Rocky Mountains, as well as in western and northern California and in parts of Oregon. It is most numerous along the eastern coast from Massachusetts to Florida, especially within a few miles of the shore. Both Texas and Florida have a great many ticks—also some inland areas, such as southern Iowa and parts of Wisconsin and Minnesota. Islands off the coast of Massachusetts are heavily infested with ticks, especially Martha's Vineyard, Nantucket and Naushon. Tick numbers fall off along the sea coast from Marion, Massachusetts, westward. The Narragansett Bay islands are rather heavily infested. A few ticks have been reported on the west side of that bay and as far west as Stonington, Connecticut. There are large numbers of ticks on Long Island, especially the eastern half, and along Chesapeake Bay in Maryland. They are rarely seen west of the Blue Ridge.

OCCUPATIONAL DISEASES

The Second Annual Symposium on Occupational Diseases of the Department of Industrial Medicine of the Northwestern University Medical School will be held on September 26 and 27, 1938, at Thorne Hall on the Chicago Campus.

The program will include papers on industrial disease education, the scope of the occupational disease research problem, traumatic neurosis, the health of the worker in the shop and at home, industrial plant surveys, industrial health and safety and the practicing physician, cardiovascular disease and peripheral vascular disease in the middle aged group of industrial workers.

At an evening session the subjects will be: the responsibility of labor, management and the community and morbidity and mortality statistics. The complete program will be published early in September.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next written examination and review of case histories of Group B applicants by the American Board of Obstetrics and Gynecology, will be held in various cities of the United States and Canada on Saturday, November 5, 1938. Last date for applying is Sept. 5, 1938.

The next general examination for all candidates (Groups A and B) will be held in St. Louis, Missouri, in June, 1939, immediately prior to the American Medical Association meeting.

Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania. Applications for these examinations must be filed in the Secretary's Office not later than sixty days prior to the scheduled dates of examination.

AMERICAN CONGRESS OF PHYSICAL THERAPY

The 17th annual scientific and clinical session of the American Congress of Physical Therapy will be held cooperatively with the 22nd annual convention of the American Occupational Therapy Association, September 12, 13, 14 and 15, 1938, at the Palmer House, Chicago. Preceding these sessions, the Congress will conduct an intensive instruction seminar in physical therapy for physicians and technicians—September 7, 8, 9 and 10.

The convention proper will have numerous special program features, a variety of papers and addresses,

clinical conferences, round table talks, and extensive scientific and technical exhibits.

The instruction seminar should prove of unusual interest to everyone interested in the fundamentals and in the newer advances in physical therapy. The faculty will be comprised of experienced teachers and clinicians; every subject in the physical therapy field will be covered. Information concerning the convention and the instruction seminar may be obtained by addressing: The American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago.

IMPORTANCE OF RESTORATION OF BLOOD SUPPLY IN FRACTURES OF NECK OF FEMUR

Because of the possibility of an inadequate supply of blood, it is Fred H. Albee's, New York and Venice, Fla. (*Journal A. M. A.*, June 18, 1938), belief that the treatment of fractures of the neck of the femur is a special problem differing from that of all other fractures. A study reveals an unusual situation. The capsule of the hip joint is attached to the neck of the femur obliquely and close to the base of the neck, and therefore a subcapital or central fracture of the neck of the femur is completely intra-articular. If it is completely intra-articular, then all possible sources of blood supply coming to the fragment of the head from the trochanter region of the femur or distal to the joint are cut off. This being so, the ligamentum teres can be the only remaining source of blood supply. During the last twenty-five years the author has performed 413 reconstruction operations for nonunion with marked absorption of the femoral neck. He removed the head of the femur in each case. In more than 70 per cent of cases, all ligamentous tissue appeared to have been evulsed from the cotyloid notch; in the remaining cases tabs of ligamentous tissue were found attached to the cotyloid notch of the acetabulum and fovea of the head of the femur or both. He deduced that in the 411 cases of subcapital fracture the weak ligamentum teres was destroyed by torsion or rotation incident to the explosive displacement at the time of fracture. If this ligament has not been ruptured, there is every reason to believe that its continuity would serve to conduct induced collateral circulation to the capital fragment, even if anatomically the blood vessels were very meager in it. It is his firm belief that in those cases coming to nonunion the destruction of the ligamentum teres at the time of the facture is the determining factor in the prevention of union. In other words, one is justified in coming to the conclusion that, when the ligamentum teres is destroyed, under such conditions the capital fragment becomes practically a joint mouse. Because of the intervening joint cavity, no blood supply can come to it, as in other fractures from adherent overlying muscles or soft parts. The fracture is wholly within the hip joint with very little soft tissue at the point of the fracture other than the torn synovial membrane on the neck itself. Under such conditions, if union is to be secured, immediate action is urgent. With the fragments in good position, a bone-graft peg of at least one-half inch in diameter should be obtained, preferably from the crest of the tibia, and should be immediately inserted.

HEMOPTYSIS IN MALIGNANT HYDATID MOLE

Edgar R. Pund, Robert B. Greenblatt, Augusta, Ga., and Cleveland Thompson, Millen, Ga. (*Journal A. M. A.*, June 11, 1938), observed a case of invasive mole in while hemoptysis was a prominent feature. Roentgen studies of the chest revealed metastatic foci in the lungs. Following hysterectomy the metastatic pulmonary foci regressed and the patient recovered (without radiation therapy). The biologic hormone assay for gonadotropic substance in the urine was only 5,000 mouse units per liter before hysterectomy and 150 mouse units per liter three weeks after operation. These low hormonal values were in harmony with the regressive features of the neoplasm and were indicative of a hopeful prognosis. The hemoptyses in such cases are due to pulmonary deportation of villi or syncytial cell masses with transitory proliferation rather than true metastases. Removal of the primary focus, i. e., hysterectomy, should always be performed regardless of the seeming hopelessness of the situation.

VITAMIN A: PHYSIOLOGY AND PATHOLOGY

In discussing the physiology and pathology of vitamin A Otto A. Bessey and S. B. Wolbach, Boston (*Journal A. M. A.*, June 18, 1938), point out that vitamin A is an essential part of the biochemical machinery of all vertebrates. It is a derivative of carotenoid pigments from plants. As far as is known, no vertebrate can synthesize carotenoids de novo. Probably all higher animals can convert certain carotenoids to vitamin A. The pathologic consequences of the deficiency are similar in man, monkeys, cattle, swine, dogs, rabbits, guinea pigs, rats, mice and fowls. For these and other reasons, facts about vitamin A learned from animal experiments are without doubt applicable to man. The specific pathologic changes of vitamin A deficiency are found in many epithelial structures and may be epitomized as follows: atrophy of the epithelium concerned, reparative proliferation of basal cells and differentiation of the new product into a stratified keratinizing epithelium. This replacement epithelium, regardless of the previous functions and structure of the region, is identical in all locations and comparable in all its layers with epidermis. Other consequences of vitamin A deficiency are common to other nutritional disturbances, including other vitamin deficiencies.

"Do you think your son will forget everything he learned in college?" asks Dr. Cutem.

"I hope so," replies Dr. Open; "he can't make a living necking."—*Temple Owl.*

Every year is "leap year" to the pedestrians.

Say it with brakes and save the flowers.

To avoid that run-down feeling, cross crossings cautiously.

Original Articles

TUMORS OF THE BREAST

IRVIN ABELL, M.D.,
LOUISVILLE, KY.

In 1915 after the late Dr. J. B. Murphy had been prosecuting a vigorous campaign for early operation in appendiceal inflammation he himself propounded the query if the time had not come to stop talking about appendicitis. In answering his own question he said: "No, it is just time to begin talking about appendicitis and talking most seriously and emphatically about it." A somewhat analogous situation exists regarding the significance of breast tumors. Nothing radically new has been brought out recently regarding them but the continued and repeated observation of instances in which there has been a woeful failure to appreciate their importance would strongly indicate the desirability of a further discussion of them. Evidence has not been lacking in our experience to show favorable results from the effort of the profession to educate both its own members and the laity regarding the import of breast tumors.

Of 192 operations done in our clinic before 1920, 112 were for malignant and 80 were for benign lesions; of 808 operations done since 1920 up to and including 1936, 335 were for malignant and 473 were for benign disorders. The preponderance, during the latter period, of operations done for benign conditions over those done for malignant ones is indicative of an increasing recognition of the potential dangers of breast tumors and of a more intensive effort to apply surgery that is both curative and preventive. In reporting the microscopic examination of the 1000 specimens the pathologist has made 1511 pathologic diagnoses. The two varieties of disease rather commonly noted in the same specimen consisted of tumor plus what we call for want of a better name, chronic mastitis or mazoplasia. The pathologic classifications afforded by the reports will not be discussed since the vitally important point to the surgeon and to the doctor is that every variety of breast tumor, with one or two exceptions, may be the starting point of malignancy and the essential knowledge desired from the pathologic report concerns the clinical characteristics of the neoplasm, whether frankly benign, definitely malignant, or on the borderline showing epithelial hyperplasia which may be regarded as a precancerous change. If one accepts the belief that all breast tumors should be removed, and I adhere to this view, such information will permit determination of the character and extent of operation based upon accurate knowledge of the significance of the lesion present.

The one benign neoplasm which carries no implication of malignant change is the lipoma, of which there were 18 in our series. They occur infrequently and present the characteristic lobulations and feel noted when in other locations. They have varied in size, ranging from small tumors with a diameter of one inch to those larger than the breast itself. In location they are subcutaneous, intramammary and retromammary, all in our series being of the subcutaneous type. They do not damage the breast tissue and simple removal suffices for their cure.

"Each lobe of the breast is contained in a capsule of fibrous tissue which sends in a fine network to support the lobules and acini of the gland, the interstices between the acini and between the different lobules and lobes being filled with adipose tissue. The sides of each lobe cannot be distinguished from its neighbor, with which it is intimately blended. The whole breast lies in the superficial fascia and is enclosed in a fibrous capsule, this capsule being continuous with the fibrous tissue which supports the different lobes. The breast is supported in the fascia by processes which pass from its capsule to attach it to the structures roundabout. These processes pass to the deep surface of the skin, called the suspensory ligaments, or the ligaments of Cooper, and the same kind of suspensory ligaments pass to the deep fascia covering the muscles which lie behind the breast." A knowledge of this distribution of fibrous tissue in the breast has a two-fold importance, first, in that involvement of it by certain tumors produces retraction of the nipple and dimpling of the skin constituting valuable evidence of the character of the tumor; and, second, in affording information as to the origin and physical attributes of the tumors originating in it. Pure fibromas are rarely found in the breast. Of our series of 553 benign lesions but 7 were microscopically identified as fibromata. They occur as a rule in young women,

Oration in Surgery read before Illinois State Medical Society, Springfield, May 18, 1938.

are hard, circumscribed and encapsulated, painless, of slow growth and may be multiple or single. While the absence of epithelial elements bespeaks their benignity, the impossibility of determining such absence without microscopic examination renders their routine removal imperative if one is to avoid the pitfalls and disasters which a waiting policy in the presence of apparently benign tumors not infrequently entails.

The fibroadenomas, consisting of both fibrous and glandular tissue are also encapsulated, of slow growth, practically painless and occur most usually in young women. These characteristics with their mobility, definite outline and occasional multiplicity are suggestive of their innocence. While usually single and involving but one breast they are not infrequently multiple and rarely both breasts simultaneously show such growth. One of our patients, a young married woman, presented three in the right and two in the left breast. At times such tumors become somewhat painful at or during the menstrual period as a result of the stimulated activity of the adenomatous tissue and may show an appreciable increase in size during pregnancy and lactation with regression when these physiologic processes have come to an end. These tumors cannot always be told from other benign breast tumors or from early malignant ones and themselves at times undergo malignant degeneration, which fact should condemn them, one and all, to removal as soon as detected. They are by far the most common of the benign tumors, 269 in our series being classified as adenoma or fibroadenoma, 4 as papillary adenoma, 6 as simple cystadenoma, 6 as multilocular cystadenoma, 6 as papillary cystadenoma and 25 as intracanalicular palillary cystadenoma. "They all have certain features in common. They consist of irregular spaces lined by epithelium derived from the acini of the gland. This may be columnar in the small spaces, cubical in the larger, and almost flat or even altogether absent in the larger spaces. The spaces may become distended to such an extent as to be cystic. The epithelium always rests upon a basement membrane, through which it shows no tendency to penetrate."

Malignant change, when superimposed on a fibro-epithelial tumor, may be in the nature either of sarcoma or carcinoma. When sarcomatous the change occurs in the interstitial tissue which becomes altered from a fibrillar to a cellular type, usually of the spindle-cell variety. "A fibroadenoma is to all intents and purposes a gland and contains not only the essential glandular tissue from which carcinoma is supposed to grow, but contains it under conditions of disturbed growth and activity that might be regarded as especially favorable to carcinoma growth." The carcinomatous change can occur not only in the epithelial tissue of the tumor itself but the latter seems liable to induce such change in the epithelium in its immediate neighborhood. For obvious reasons diagnosis based upon clinical signs alone early in the course of malignant degeneration of fibro-epithelial tumors is very difficult. Rapid enlargement of one which has long remained stationary in size or grown slowly, is strongly suggestive but cyst formation in an innocent growth will cause the same phenomena. Safety to the patient demands removal of all fibro-epithelial tumors as soon as detected, the extent of the surgical attack being determined by microscopic examination.

The papillomas which occur in the ducts, usually in or near the ampulla, of which we have seen thirty-five, are often of such small size as to elude any but the most careful and searching examination. They grow from the walls of the duct in the form of wart-like excrescences and occasion as their outstanding symptom a discharge from the nipple. They commonly occur at the age of involution, are usually single, unilateral and centrally placed under the nipple and areola but may occasionally be multiple not only in the same duct but in a number of ducts. In our series they have varied in size from a grain of wheat to that of a large cherry. While as a rule they are fairly well localized, we have seen instances where the entire duct from the ampulla to its point of origin in the breast tissue was filled with tumor tissue. The discharge from the nipple is either clear or bloody: since a bloody discharge may connote carcinoma, doing so in approximately 45% of the cases in which it is present, the importance of determining its significance becomes apparent. Serous or milky discharge from the nipple is sometimes seen long after lactation and cannot be said to be abnormal. Serous discharge is noted in benign papilloma; clear or turbid discharge is at times observed in chronic mastitis due to dilatation of the ducts and acini whose lumens are distended by necrotic epithelial

debris: bloody discharge commonly signifies benign duct papilloma or early duct carcinoma or sarcoma. Breasts exhibiting a bloody discharge from the nipple demand a determination of its origin and of the character of the neoplasm, which can be satisfactorily made only by removal of the growth and its microscopic study. Careful palpation will usually reveal the growth: when it cannot be detected by palpation the site at which pressure causes an exudation of bloody fluid from the nipple will be found to correspond with the location of the tumor. Transillumination of the breast suggested by Cutler in 1929 is of value in the recognition of such growths when the mobility of the breast permits the light to be so placed that the suspected lesion lies between the light and the examiner's eye. The more difficult it is to palpate the tumor, the more likely it is that the latter is benign papilloma: the more definitely outlined the tumor, the more likely it is to be carcinoma. It is granted that duct papilloma may remain benign for a number of years but it is evident from a study of case histories that a goodly percentage of such tumors ultimately become malignant, hence the urgency of their removal and the microscopic determination of their character. In contradistinction to other fibro-epithelial mammary neoplasms these growths in our experience are rarely multiple or bilateral. We have seen but few patients presenting bilateral intraductal tumors: an unmarried woman of 45 gave a history of lumpiness and discomfort in both breasts for eight years and recent bloody discharge from both nipples. Bilateral single intraductal papillomas were present, each showing second degree hyperplasia: both breasts showed chronic mastitis.

Localized areas of chronic cystic mastitis may present symptoms clinically not distinguishable from tumor. Limited areas of indurated, hardened, breast tissue may represent such a lesion or may represent carcinoma. Regardless of whether one believes or does not believe that chronic cystic mastitis predisposes to the development of cancer the uncertainty of diagnosis based upon clinical deductions alone is such as to warrant operative removal whereby an uncertain diagnosis can be made certain by visual and microscopic examination.

Chronic mastitis is such a frequent concomitant of both benign and malignant breast tumors as to furnish grounds for the suspicion that they are definitely related. It was present in 478 of our 1000 patients and in 229 of these it was concomitant with tumor, benign or malignant. "The epithelial hyperplasia of chronic cystic mastitis may pass into a state of epithelial neoplasia, at first benign but which later may become carcinomatous." In a study of fifty-three breasts selected for detailed microscopic examination it was significant among the interesting facts elicited that in at least twenty-one the routine sections showed distinct relationship between chronic mastitis and undoubted epithelial neoplasm. Such an incidence does not prove that chronic mastitis is a causative factor in the production of epithelial neoplasms but affords basis for the belief that such a continued source of irritation in the breast renders the patient more liable to the development of such tumors and yields justification for a surgical removal of, or a resection of, the breast for its elimination. Our records show 142 conservative amputations and 100 resections for benign disease. The resections were done because of localized chronic mastitis alone or in association with simple tumor and consisted in the removal of wedge-shaped section of breast tissue, the base corresponding to the periphery of the gland, the apex to the nipple, of sufficient size to include the visibly diseased lobe or lobes.

In so far as the operative treatment of a tumor of the breast is concerned, the growth is either innocent or malignant: the problem of greatest importance to the patient is the determination of this factor. Since 1917 we have resorted to the routine employment of frozen tissue sections in all cases in which after clinical examination the diagnosis is doubtful. While it is true that pathologists may differ on the interpretation of a borderline case, to say that a surgeon from the clinical history and gross examination can make more reliable deductions as to malignancy than can a trained and experienced pathologist with the microscope is to argue falsely. Removal of the entire tumor with gross examination of it and, if possible, the formation of an opinion, is followed by frozen section and microscopic study. We believe this practice has greatly improved our ability to interpret gross lesions but we are unwilling to rely entirely on it when the question at issue is so fraught with possible disaster to the patient in the event of erroneous inter-

pretation. In determining the extent of operation we have followed the criteria given by McCarty of first, second and third degree epithelial hyperplasia: the first degree is accepted as indicating benignity requiring only the removal of the tumor; the second degree as indicating borderline or precancerous hyperplasia in which conservative amputation of the gland is requisite for protection of the patient; and third degree epithelial hyperplasia as showing frank malignancy demanding radical extirpation.

If the tumor be innocent there only remains for decision the method of removal that confers on the patient the least degree of mutilation since in its removal other considerations than the mere curing of the disease may well receive closer attention. Duct papillomas and other fibro-epithelial tumors lying close under the areola may be reached by a circumferential incision along its border with elevation of the skin and careful dissection paralleling the long axis of the duct. Perfect hemostasis with accurate closure of the wound and precise coaptation of skin margins will result in a minimum deformity or scar. The site of election for removal of other benign tumors and for resection of the breast, from the viewpoints of cosmetics, anatomy and physiology, is to be found at the lower and axillary borders of the gland. A crescentic incision in the sulcus along the lower and outer border of the breast avoids the blood and nerve supply of the gland, permits the latter being turned upward and inward so that all parts of it become accessible, the resulting scar being hidden, and all but invisible. The same incision extended inward supplemented by the excision of a simalunar flap of skin over the lower hemisphere of the gland, with or without preservation of the nipple, may be advantageously employed in conservative amputations in that the ensuing scar is transverse and not exposed to view when summer or evening clothing is worn.

Of our series of operations, 447 were radical amputations done for the removal of malignant tumors, 13 of which were sarcoma and 434 were carcinoma. Of the sarcomas, 8 were reported as fibrosarcoma and 5 as round-cell sarcoma. The sarcomas probably originate in the periductal fibrous tissue which is peculiar to the breast and not infrequently result from degeneration of a primary periductal fibroma or fibroadenoma. They tend to involve the entire breast rather rapidly and in the absence of removal attain a large size. They occur most frequently near the middle period of life and often show cystic degeneration. The more cellular the tumor, the more rapid the growth and the greater the tendency to metastasis. While the latter is rarely noted by way of the lumphatics, the tumor possessing none, it occurs far more frequently by way of the blood stream, the tumor cells penetrating the vessel walls to be carried away as emboli. Unfortunately, as with carcinoma, there is no clinical means of recognizing early internal metastasis and avoiding useless operation. In the early stage of growth there are no symptoms beyond the presence of a tumor. In the periductal tumors bloody discharge from the nipple will at times be noted. The overlying skin is practically never drawn down to the growth as in carcinoma. Rapid enlargement of a tumor which has been quiescent for a long time is suggestive while later a large tumor with a history of short duration, showing evidence of cystic change, covered with thin bluish or reddened skin containing large veins makes the diagnosis apparent.

Granting an early diagnosis the prognosis in sarcoma is more favorable than in carcinoma and even with rather advanced growth, from a viewpiont of local development, the outlook is not entirely hopeless. Since metastasis occurs so generally by way of the blood stream it has been suggested that the removal of the pectoral muscle, axillary nodes and fat is unnecessary. In view of the microscopically proved metastasis to the lymph nodes in some cases and as well of the known early invasion of the pectoral muscles in some such an operation must be regarded as incomplete. We have routinely done the radical extirpation, removing a wide area of the skin with the breast, pectoral muscles, fat and fascia together with the axillary glands, fat and fascia, believing that the best opportunity of obtaining a cure is afforded by a radical removal at the earliest possible time in the course of the growth.

The microscopic reports in the 434 cases of carcinoma showed scirrhous, medullary, adenomatous and colloid types. We have seen none of the sweat gland or of the squamous-cell varieties. The classification of breast cancers is of interest chiefly to the pathologist since to the clinician all are cancers and in the light of our present knowledge there is but one solution to

the problem of treatment. A knowledge of the morbid anatomy is of some value from a standpoint of prognosis, since rapidity of growth and early metastasis are more frequently noted in the cellular than in the sclerotic types.

The incidence of cancer of the breast is greatest in the fifth and sixth decades, very rare before the age of 20 but frequently noted in the ensuing decades. As is true of cancer elsewhere, the younger the patient, the more rapid the growth and the earlier the dissemination. We have but two 5-year cures in the group of patients operated on before the age of 30. A common delusion not entirely limited to the laity is that the disease is one of old or middle age and that a tumor in the breast of a young woman does not require the same investigation as when appearing later in life. In no condition is this policy of watchful waiting more disastrous.

Nothing new can be said regarding the etiology which still remains submerged in obscurity. Heridity, trauma, the relation of the disease to chronic mastitis, to pregnancy and lactation, to nursing accidents such as mastitis and abscess and to other breast tumors undoubtedly play a part in forming the background upon which it so frequently develops.

The most important symptom, readily recognizable by both patient and physician, is the presence of a palpable, single tumor in one breast. Multiple tumors in one or both breasts speak for innocence but do not rule out the possibility that one of the tumors may be malignant. The tumor of primary breast cancer in its early stage is small, painless, hard, infiltrative and fixed in the breast tissue. Its physical signs may arouse one's suspicions but there is nothing pathognomonic about it. Its presence, however, is abundant justification for removing it and, upon microscopic confirmation, for carrying out the radical procedure. In our experience operation at this stage has given over 70% of 5-year cures. With the continued growth of the tumor the overlying skin shows dimpling as a result of the involvement and consequent shortening of the suspensory ligaments. While this symptom, when present, is of paramount importance in the clinical recognition of cancer, it is to be borne in mind that it is also noted at times with mastitis and with inflammation. Retraction of the nipple occurs when the underlying fibrous tissue is invaded and depending upon the location of the growth may be relatively early or quite late in its appearance, or entirely absent. Bleeding from the nipple is noted when the growth originates in the duct or involves it in its progress. Enlargement of the axillary nodes cannot be regarded as an early symptom. Such enlargement may be due to metastasis or to toxic lymphadenitis, the microscope being required at times to make the distinction. The fact that no enlarged nodes can be palpated does not give assurance that metastasis has not occurred, while positive evidence of axilliary involvement indicates a diminished chance for cure.

The presence of all the symptoms mentioned will permit a positive clinical diagnosis of cancer and also give positive assurance that the favorable time for obtaining a cure has already passed. The microscopic character of the neoplasm, whether growing slowly or rapidly, and the duration of its existence are the two important factors in determining the outcome in a given case. Over the first we have no control, while the responsibility for the second factor is divided between the patient and ourselves. In our first 138 cases of cancer the average duration of symptoms before the patients come under our care was 15.8 months, the shortest history being 2 days, the longest 10 years. In the first 160 patients with benign disease, the average duration of symptoms was 17.2 months, the shortest history 1 day, the longest 40 years. These averages have been materially shortened in the subsequent cases as a result of the lay and professional propaganda regarding the significance of tumors in the breast and the fact that they do come earlier makes the diagnosis more difficult since frequently nothing more than a small nodule is present. Since then, with the diffusion of knowledge patients are coming at an earlier period of disease, it is incumbent on us to limit the incidence of cancer by removing the innocent lesions which may predispose to it and to give to those who have cancer the benefit of a prompt institution of the measures which time and experience have proved most reliable. A diagnosis that can be made on clinical symptoms alone should be supplemented by a careful search for possible metastases, including an x-ray film of the chest, in order that useless operations may be avoided. A roentgen examination of the entire skeleton is neither practicable nor always

feasible but if routinely undertaken would detect unsuspected bone metastases.

The only treatment for malignant breast tumors that has stood the test of time is that of surgical removal, alone or supplemented with irradiation, and which should include a wide area of skin with the breast, pectora muscles, fat and fascia, axilliary nodes, fat and fascia. An incomplete operation but invites the disaster we are endeavoring to avoid, namely, dissemination. We have in our files the records of five patients treated elsewhere by simple removal from the breast of microscopically proven carcinomas followed by implantation of radium in the wound and subsequent x-ray therapy. All showed recurrence in the breast giving abundant ground for assuming that such dissemination could have been averted by the radical operation. Irradiation in the treatment of breast cancer holds an important place in inoperable primary and in recurrent cases. Its place elsewhere in this field is difficult to evaluate. We have had no experience with it as a preoperative measure, except in advanced cases in which the extent of involvement seemed to preclude successful surgical removal. In the cases in which, under such treatment, diminution of apparent involvements occurred in degree to warrant carrying out radical amputation, this has been done: in no single case, however, has prolongation of life beyond five years been secured. It is my impression that its employment in such advanced cases showing sensitivity to irradiation has been worth while in increasing life expectancy. If employed preoperatively in every case showing enlargement at the axillary nodes, there is, I think, justification for the belief that the percentage of five-year cures would be enhanced. Greenough in his report embracing the results from numerous clinics assembled by him for the Committee on the Treatment of Malignant Diseases with Radium and X-ray of the American College of Surgeons, concludes: "These figures fail to indicate that the use of prophylactic x-ray as practiced in this series increases in any way the number of cases of cancer of the breast which are free from recurrence five years after operation." Other reporters claim a definite increase in five-year cures following its preoperative employment. In 1933 a "follow up" of 217 cases operated on by us before 1928, and in none of which irradiation, either pre or postoperatively, was employed, showed 46% of five-year cures, notwithstanding our having to count 28 unfound cases as dead. The percentage in those showing lymph node metastasis was 26, and in those with no lymph node involvement was 75.8. We then began using postoperative irradiation therapy as a routine measure, although it was difficult to see that it could be of any great value other than in diminishing local and axillary recurrences, which, however, is distinctly worth while. We have at all times carried out the radical operation of removing the breast, pectoral muscles, fat and fascia, axillary glands, fat and fascia, and finally reached the conclusion, upon which our practice is based today, that when microscopical examination of the removed tissue shows no metastasis in the breast or in the lymph nodes, postoperative irradiation is not indicated, since, if metastasis has occurred, the sites of such lodgement are so deeply or so distantly located that irradiation will prove unavailing. When, however, the microscopic examination shows metastasis in the breast or lymph nodes, postoperative irradiation is employed on the assumption that it may prove helpful in destroying superficial metastases which may have escaped removal: neither of the groups so treated has attained sufficient age or number to be of value for comparison. In patients approaching the menopausal age x-ray sterilization is worth while in eliminating the estrogenic influence in promoting further growth of possible metastatic implants. When the patient is younger, the question of sterilization is determined by the absence or presence of demonstrable metastasis: where none can be found, the assumption that the growth is limited to the breast justifies the retention of the child-bearing function, and conversely, when present, the increase in margin of safety resulting from its ablation warrants such a course.

321 Broadway.

The Skin of an Allegeric Patient which fails to react to the intradermal injection of allergen to which he is sensitive may be made to react to the passive transfer of his own blood serum into his own skin. Cowie, D. M., *Ann. Int. Med.* 11:949, 1937.

Sulfanilamide in a daily dose of 80 grains for four days followed by 40 grains for four days, and then 20 grains for seven days produced 85 per cent cures in 134 cases of gonorrhea. No complications were observed. Orr. H. *Canad. M. A. J.*, 37:364, 1937.

THE FUTURE OF THE COUNTY MEDICAL SOCIETY

S. E. MUNSON, M. D.
SPRINGFIELD, ILL.

I have always keenly felt the importance of membership in the County Medical Society. Most of my early efforts as a Councilor were directed to so stimulating the profession locally that there was a desire upon the part of each medical man in the community to belong to his County Medical Society.

Membership was the first thing necessary to make a physician conscious of his need of better methods in the procedure of the practice of medicine, and his ethical responsibility to his profession and the community. With the profession well organized, there will be a higher regard for the ethical relations that should exist between the members, just as the highest efficiency of an army is formulated by cohesion and training.

I thought in my early years that with this accomplished, the medical men locally would gradually be able to take hold of their problems and settle their own difficulties.

Twelve or fifteen years ago, it seemed to me that with better organization we could so improve the local conditions under which medicine was practiced, with a better feeling existing in the profession, that we need not have serious fears as to encroachment in the affairs of public health by the State and Government.

In looking back over the past, it is quite evident to any medical thinker that much of our difficulties at the present time have been due to the neglect or inability of the profession in the last twenty-five or thirty years to deal with community needs and affairs as scientific medicine made its progress.

From one who has travelled the country from coast to coast, visiting many State Medical Societies and County meetings, as well as many public meetings, the conditions of the medical profession of today is well set forth by the President of the American Medical Association, Dr. J. H. J. Upham, of Columbus, Ohio:

"As far as the scientific side of medicine is concerned, we can be proud of the progress that is being made. The majority of physicians are tremendously interested in self-improvement and in raising the plane of medical practice all over the country. However, there is another side that is not altogether satisfactory. There is a feeling of uneasiness. Much of this has been the result of lack of organization in some areas. There is great need of better organization. We should consider our professional activities much as we do our personal activities. There are two sides to the practice of medicine, the scientific side and the economic side. One is necessarily dependent on the other."

No doubt the difficulty has been primarily the necessity of earning a living, supporting and educating a family and to acquire a competency for old age. But along with this there should have been organization, so that the unity of effort would have been more successful in solving the problems that have gradually accumulated over a period of years and that now seem an arduous task to accomplish.

My memory goes back to the wasted opportunities of medical men, on account of lack of organization, engaging in political activities that in no way helped the medical profession or the community in which they lived.

Necessarily, a new country circumscribed the opportunities of medical men for scientific or ethical improvement. It now seems the task to determine the needs of our respective counties and formulate plans to eradicate the harmful procedures, politically and otherwise, that have guided affairs in our communities.

It is now that the officials of the American Medical Association have at last found it necessary to formulate and assist with plans that have been found to be most successful in various localities throughout the country, that may be applied to help us in our efforts.

Where the profession has neglected its responsibilities, out of a lack of organization or concern in public affairs, the people, realizing this, have taken the lead and the medical profession has lost its opportunity in leading and organizing in the improvement of public health, social and moral betterment in their communities.

In this way, most of the work has been led by social workers, and the medical profession, instead of being the first thought of such an organization in most of the communities, is now only sought where the knowledge of medicine and the art of its practice is found necessary.

Prepared for Secretaries Conference, Springfield, May 17, 1938.

In the talks that I have made during the past winter, to civic and county medical societies, I have discussed the economic conditions that brought about the entirely new and unforeseen circumstances, which has led up to the question as to the medical profession being able to care for those of the underpaid group, under $1000 and $1200 annual income, and as to funds for medical and hospital care to those who on account of loss of employment, are entirely unable to have adequate medical care.

The local or civic charities have been unable to supply even food, clothing and shelter without help from government funds. Many of the old plans under county and township administration have been inadequate and too expensive to provide for the greater number in need. This is now the reason why the trustees of the American Medical Association have decided upon this plan of suggesting a guide for the more than 2,000 county medical societies of the United States, to determine the real condition as to whether there is adequate medical care, that plans may be devised where medical care may be carried out more economically and advantageously.

This survey, I am sure, will bring to the minds of each member of a county medical society his responsibility, individually through committees, the facts of his personal knowledge of the people that are every day under his direct observation. This will include a report of what part of this work is done as charity, or for less than the usual fair schedule of fees.

In response to this plan that will guide the State and County Medical Societies in their contact with the public, the trustees of the American Medical Association recently adopted resolutions suggesting and offering aid to encourage medical societies to collect information concerning medical needs in accordance with established policies and local conditions.

"WHEREAS, A varying number of people may at times be insufficiently supplied with needed medical service for the maintenance of health and the prevention of disease; and

"WHEREAS, The means of supplying medical service differ in various communities; be it

"Resolved, That the American Medical Association stimulate the State and County Medical Societies to assume leadership, securing cooperation of State and local health agencies, health authorities, and dental, nursing and correlated professions, welfare agencies and community chests, in determining for each county in the United States the prevailing need for medical and preventive medical service where such may be insufficient or unavailable; and that such state and county medical societies develop for each county the preferable procedure for supplying these several needs, utilizing to the fullest extent the medical and health agencies now available, in accordance with the established policies of the American Medical Association.

"Be it further

"Resolved, That the Board of Trustees of the American Medical Association establish a committee to cooperate with the Bureau of Medical Economics to outline the necessary procedures for making further studies and reports of the prevailing need for medical and preventive medical services; and that the Secretary of the American Medical Association arrange to develop such activities through the secretaries of State and County Medical Societies in each instance, urging the formation of special committees in each county and state where committees are not available for this purpose."

The County Medical Society should appoint a special committee to direct the collection of information. This committee should be charged with the responsibility of securing information from those agencies which have exhibited official or voluntary interest in the medical needs of the community. Such information can best be secured by separate, individual contacts. Public mass meetings do not often yield dependable information.

It will be necessary for county medical societies to consider well the number and qualifications of the persons who are to assemble the information desired. The number will depend on the size and details of the program undertaken and the resources available.

This will make felt the need of well-planned and hard-working committees to solve the difficulties that I have outlined. Show me a society with hard-working committees and you can be sure that there will be found a society that is depended on by the community for all matters of public health, sanitation, meeting its problems of charity and indigency, and the management of its hospitals, welfare agencies and community chests.

That we may determine the prevailing need

for preventive and medical service, and that these needs may be provided by the best ethical traditions of our profession, there must be a well functioning medical society that is in every way capable of meeting its responsibilities.

It is not only the purpose of this survey to find the existing conditions in each County Medical Society, but after they are looked over by the committee and carefully correlated, measures are to be put into effect to eliminate useless expense in accomplishing the needs and problems of the community.

This is going to bring about a more efficient County Medical Society than we have had in the past. Instead of looking to the American Medical Association or the State Medical Society to solve our medical problems, much of this can be accomplished by the well organized membership of the County Society, who largely shares the responsibilities of organized medicine.

We need a new united effort from every factor concerned in health, if we are to bring better health to more of our people. To improve the quality of medical care, it is equally important that medical care and health service should be placed in the reach of those unable to procure it for themselves.

Dr. Thomas Parran, Surgeon General, U. S. P. H. S., stated his belief that every health organization should have local control, and that every health program should be built on the specific needs of the community it is designed to serve, for unless we have a health organization in every community, and the leading Doctors are interested enough to set its standards we shall never have a successful health effort against the great plagues of our time.

It is easier to control disease than it is to control poverty, and poverty in turn begets disease. Hence, the importance of every effort of organized medicine to be health-minded in its community.

The purpose of the County Medical Society is to bring together men with trained minds, that they may be of the utmost benefit to the community in carrying ever forward the most advanced ideas and proven facts to combat disease, not only in the community and the school, but in the home and to each member of the fireside, for only happiness can dwell where there is absence from worry and sickness.

The medical profession, with all of its many specialties, are after all combined under one great organization, for the same purpose of ever increasing our knowledge of the most successful manner of curing and controlling disease.

This great heritage medicine bestows upon one who has chosen to devote a life to learning the approved truths and knowledge to combat disease, and by study to add to this knowledge his own contribution to the future of medicine for the benefit of his fellowmen.

PRENATAL CARE

W. C. DANFORTH, M. D.

Chief of Department of Obstetrics and Gynecology, Evanston Hospital

EVANSTON, ILLINOIS

Prenatal care of the expectant mother has, during recent years, come to be recognized as an extremely important part of the duty of the obstetrician. Both in private practice and in the clinic the proper conduct of pregnancy demands that constant supervision be maintained. While all complications of pregnancy cannot be avoided, it is possible to increase the safety of the expectant mother sufficiently that care during pregnancy becomes an indispensable part of the duty both of the obstetrician in private practice and of the obstetric clinic. We have found, both in the active prenatal clinic of the Evanston Hospital, and in the private work of the members of the attending staff of the department of obstetrics and gynecology, that a definite plan of prenatal observation has been to the best interests of our patients. The plan followed is the same so far as its essentials are concerned, in both ward and private patients. The clinic patients are seen in an out-patient clinic provided with three cubicles for examination, adequate nursing service, and necessary instruments for examination. One of the most valuable individuals in our clinic personnel is a nurse from the local Visiting Nurse Association, who attends each clinic and from whom may be obtained much information concerning the patients. Between clinic days she keeps in touch with the women in their homes, advises them, and communicates to the doctor any information which she thinks he ought to be told. Patients may be referred to any of the other clinics of the

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hospital and are regularly sent to the dentist after the first visit.

One of the three most serious complications of pregnancy and labor is toxemia and its sequence, eclampsia. Eclampsia may be reduced so efficiently by painstaking care of pregnant women that we for years past have not had enough cases of this disease to teach the internes and nurses to care for them. If nothing further were accomplished by prenatal care than this increase in safety by the reduction in the incidence of this disease it would be worth while.

The first duty of the physician who assumes the responsibility of the care of an expectant mother is to ascertain whether her general physical condition is normal, whether any defect or disease exists which will increase the risk of pregnancy and labor. It is essential that the obstetrician know whether some cardiac defect or pulmonary infection is present. Should a heart murmur be found, its presence alone is of no great moment but it is of the greatest importance to know whether the heart is entirely compensated. A murmur is, of itself, of little importance if the heart is doing its work without difficulty. As an interne in the County Hospital in Chicago one of the cases which made a strong impression on me was that of a man who had, for years, carried on the laborious occupation of a piano mover. His heart was perfectly compensated and he had come to the hospital for something entirely unconnected with his circulatory condition. A history of decompensation, particularly recently, a dusky tint of the lips, edema of the ankles and moist rales at the bases of the lungs are significant signs. An active intelligence and five senses in good working order are all that one needs to discover these signs of cardiac incompetence. An electrocardiogram may be used as a refinement of diagnosis but, in most cases, this is all that it will be. A careful history will have disclosed an earlier pulmonary trouble and physical examination will indicate whether any trouble remains. In some cases a roentgenogram of the chest may help but, again, the chief reliance should be placed in the perceptions of the physician himself. The great majority of physicians who must care for women in pregnancy and labor work in communities in which all the refinements of laboratory diagnosis are not available. A decision must be made as to the management of the women whose heart is not functioning normally but it should be remembered that, with judicious management, the majority of women with heart disease may be carried through pregnancy and labor safely.

Patients sometimes give a history of pulmonary tuberculosis, or an illness which they think may have been tuberculosis. An active tuberculosis in the first trimester of pregnancy is a justifiable reason for the interruption of pregnancy but an old, quiescent, healed lesion is not. An active tuberculosis in late pregnancy will usually not justify interruption. The mother will not receive enough benefit to compensate for the loss of the fetus. As this is written, a private patient is under observation in the last few weeks of pregnancy, who has passed through the entire pregnancy with one lung collapsed. Pneumothorax had been carried out by Dr. Jerome Head many months prior to the beginning of the pregnancy and, with his cooperation, the pregnancy has progressed without incident. Delivery will probably be by abdominal section to spare the remaining lung too great strain. The advent of an acute respiratory infection in a pregnant woman should always be looked upon as more serious than in a woman who is not pregnant. She should be placed in bed at once and made to remain there until her temperature has been normal for at least one day and longer if possible. Induction should never be done in the presence of pneumonia. Premature labor will usually come on spontaneously and is usually rapid. Interference is contraindicated. Treatment should be that of a pneumonia, the pregnancy being disregarded for the time being unless labor sets in.

A routine Wassermann is an essential part of prenatal care. There has been so much in the public prints about syphilis in the last few years that our patients are usually informed about it and regard the taking of blood for such a test as quite natural. It is no longer excusable to allow a woman to go through pregnancy with an undiscovered lues, both on her own account and upon that of her infant. McCord has recently shown that, in the case of a syphilitic mother, if treatment is begun early in pregnancy and carried out energetically, 95% of the babies will be healthy. If the lues is not treated, 30% of the infants will be infected. Treatment, if needed, should be managed by an expert syphil-

ographer. Gonorrhea, if present, should be treated as conservatively as possible. No active treatment should be used unless unavoidable. Simple douches, often of salt solution, for cleanliness only, may be used. A trichomonas invasion may cause the mother much discomfort. Gentle douches of luke-warm soap suds and the use of a suppository containing picric acid will usually enable her to get through the pregnancy, when more energetic measures may be used if needed.

Every pregnant woman should be sent to her dentist, or, if she is a patient in the clinic of a hospital, to the attending dentist. Her teeth should be inspected for cavities and these should be filled at once as they increase in size more rapidly during pregnancy than at other times. Non-vital teeth should be regarded with especial care. If non-vital teeth are present roentgenographic examination will in most cases be wise. Abscessed teeth should be extracted. Extraction is very unlikely to cause abortion but local anesthesia is better than gas as the extraction can be done without haste and with less trauma.

The taking of pelvic measurements is so fundamental that no time need be spent urging it. Failure to do so today may be looked upon as neglect. Roentgenographic study of the pelvis may be wise if asymmetry is present and in some cases near the end of pregnancy in order to estimate the relationship between the pelvis and the head. A number of methods of roentgenographic measurement have been described. If the obstetrician has become expert in one of these or if a roentgenologist is available who has the necessary experience and who has the needed apparatus, they may be used. Few hospitals or communities are so provided.

Some degree of anemia is frequent in pregnant women. This has been studied in a number of clinics in this country, including our own from which Galloway has published two reports. The anemia is usually not severe. A blood count early in pregnancy is important. If anemia is found treatment should be instituted as it is not wise to allow the woman to approach the end of pregnancy with her blood below par. The anemia usually corrects itself after the termination of pregnancy. Blood loss of more than the average amount might easily be more serious in an anemic woman than in one who is normal. Iron is the best remedy and it should be given in adequate doses.

A pelvic examination should be made in early pregnancy to ascertain whether the uterus is in normal position and whether there are any uterine or ovarian tumors. The management of these will not be discussed. It is extremely important, if a tumor be present, that it be known early in the pregnancy.

After having completed the necessary examinations the physician proceeds to advise the mother as to her mode of life during the pregnancy. The first point taken up with her is that of diet. Her gain in weight should be restricted to twenty pounds, or at most twenty-five, during the pregnancy. The gain in weight of the mother has nothing to do with the weight of the infant but women who gain excessively in weight are much more likely to become toxic. This must be impressed upon her. If she is over weight the gain may need to be even more restricted while a woman who is definitely under weight may be allowed a little more than the usual twenty. That an undue gain in weight is associated with an increased danger of toxemia is well established by the experience of a number of clinics. She should be asked to be conservative in the amount of fats and carbohydrates in her diet. If, in spite of caution, she gains more than she should a calorie list will be useful. She should be instructed to take each day some of the foods which contain vitamin C. This is important because of its protective effect upon the teeth and because it aids in the formation of the fetal skeleton. Other vitamins are usually present in the diet. A sufficient water intake should be advised, six to eight glasses per day. Especially during the winter, when in this state the amount of sunlight is diminished in winter, pregnant women should be given calcium and vitamin D, without which the calcium will not be utilized. The optimum amount of calcium is 0.7 Gm. per day. Any one of a number of soluble calcium salts together with vitamin D should be given.

Pregnant women tire more easily than non-pregnant ones and more rest is essential. Light housework may be done but the heavier forms of work should be given up. Light outdoor exercise should be taken, each woman doing what she finds she can without fatigue. Very active exercises should be given up, such as tennis,

horseback riding and long cross-country automobile rides. If there has been a history of abortion, activity should be restricted, especially during the first trimester during which time about 80% of abortions occur.

Breast hygiene should be very simple. The so-called hardening lotions are useless and sometimes irritating and should not be used. Oil and grease of any sort is similarly without value. It is not possible to alter the skin with which the woman is endowed but it can be kept in as good condition as possible. To this end, as soon as any discharge is noted, and in the last month in any case, the nipples should be gently washed each day with some non-irritating soap and dried gently with a soft cloth. Vigorous rubbing, especially with a rough cloth or a brush in order to toughen them is uncomfortable, useless and harmful. Complete cleanliness is the most important thing. The secretion which escapes from the nipples toward the end of pregnancy may decompose on the skin, and, by harboring bacteria, increase the likelihood of infection. Brassieres should be of the uplift type and should not press the breasts against the chest wall. Fortunately the fad for the boyish figure has passed.

Constipation, which is rather frequent during pregnancy, should be managed, as far as possible, without the use of cathartics. Diet containing roughage, an adequate water intake, some one of the forms of liquid petrolatum will usually suffice. If they are not effective some gentle laxative, as aromatic cascara, may be used.

The complications of pregnancy cannot be discussed but few words should be said about the prevention of abortion. One cannot always prevent abortion but success is attained often enough to make the attempt worth while. If the patient gives a history of abortion we usually have an estimation of basal metabolism for hypothyroid women are more apt to abort than those whose thyroid activity is normal. Should a rate less than normal be found, it is corrected by the administration of thyroid before the beginning of another pregnancy and the taking of thyroid is continued throughout the new pregnancy. Focal infections should be eliminated. If a retroversion is found, although a backward position of the uterus is probably only rarely the cause of an abortion, it may be corrected and the uterus held in position by means of a pessary until it is too large to again assume the backward position. A retroversion in a primipara may be let alone unless it fails to correct itself before the end of the third month. As soon as the pregnancy has begun the administration of progesterone should be started, one unit being given three times a week. Vitamin E may also be employed although this substance has not yet been thoroughly evaluated as to its effect in decreasing the likelihood of abortion. Shute and his co-workers believe that the doses hitherto given are too small. A sufficient calcium intake must be arranged for, the amount already indicated being sufficient. At the time at which menstruation would occur were the woman not pregnant she should give up all activity, remain at home and lie down much of the time. Only gentle exercise and no journeys should be taken. Any sign of bleeding should be followed by bed rest at once which should continue until forty-eight hours without bleeding have passed. The number of abortions may be decreased but it is impossible to completely prevent their occurrence.

That prenatal care accomplishes a useful purpose is evidenced by the lesser number of cases of toxemia which are seen today in the private work of careful obstetricians and in clinics in which prenatal observation is effectively carried out. Eclampsia cannot be wholly abolished but the number of cases can be greatly lessened. During recent years in our own service there have been so few cases that we have not had opportunity sufficiently to instruct our internes and nurses to care for the disease. Eclamptic convulsions have been demonstrated to the last two classes of nurses by means of a motion picture. Every pregnant woman is entitled to the increased safety which proper observation during pregnancy gives and which she should receive either from the private physician or from the clinic, if she is to be delivered upon a ward service.

DISCUSSION

Dr. Ralph R. Loar, Bloomington: Dr. Danforth stated in his letter to me that he felt it an imposition to inflict the Society with such a simple detailing of the matter of prenatal care and that he did so only upon the request of Dr. Carlisle. I am sure you will agree that both the subject and its treatment need no apology and I feel honored in being asked to discuss it. The subject is of such importance that constant repetition is perfectly justifiable.

I do not feel it necessary, and time would not permit, a detailed discussion. However, I would like to just touch upon the matter of the mental hygiene of preg-

nancy. It is here that each patient must be individualized. Something more is necessary besides routine examinations and a pamphlet with stereotyped instructions. The mind of the primipara particularly is often full of wonderment and many times unexpressed fears, implanted by well meaning friends and relatives. Time and patience are required to elicit these and one should begin at the first prenatal visit. I suggest that she keep a list of all the points that worry her and then go over them carefully at subsequent calls. Not the least of these worries is the bugaboo of finances which can be minimized by installment payments, so that at least her convalescence is not disturbed by the fear of not having enough left from her budget to pay the doctor after the hospital bill has been paid.

The need for improvement in prenatal care for every prospective mother, particularly in smaller communities, is a very real one and I am sure the emphasis the Maternal Welfare Committee is placing upon it, cannot fail to effect definite results.

Every man or woman doing any obstetrics at all must feel a greater responsibility in the care of his patients, whether of the indigent or well-to-do classes, and the public, not already acquainted with the value of such care, must be educated to cooperate with the profession to the fullest extent. When this is accomplished there will be no occasion for the remark of one man who said, "I cannot afford to put so much time on one patient for the fee that I get."

It is obvious then that it is necessary for the physician to keep himself informed as to the progress of investigators in this field, together with the willingness to give more time and study to each individual case, and lastly, to thoroughly convince the patient that such painstaking study is of definite value and worthy of remuneration commensurate with the economic status of the individual. As Dr. Danforth said in closing his paper, "Every pregnant woman is entitled to the increased safety which proper observation during pregnancy gives and which she should receive, either from the private physician or from the clinic."

DIAGNOSIS OF CONTRACTED PELVIS

DAVID S. HILLIS, M. D.
CHICAGO

When a surgeon puts on his gloves and a gown to operate, he has to deal with a pathological condition in every case whether it be opening a furuncle or doing a gastric resection; in one hundred operations he gains valuable experience in each one. When an obstetrician delivers one hundred women, ninety-five of them are so nearly normal that the experience gained in caring for them is of little or no help in the management and delivery of the five remaining cases in which he will have to deal with some pathological complication.

It is among this 5 per cent. that the deaths and injuries occur which have caused it to be claimed that the United States has a higher mortality and morbidity in childbirth than most other civilized countries; and it is to these comparatively few cases that our attention and effort must be directed if our results in obstetrics are to be improved.

In order to secure a successful outcome in a complicated obstetric case the earliest possible recognition of conditions that may cause trouble is of the greatest importance. All pregnant women look much alike at term, but each one is a potential tragedy. When we can select in advance the cases that are to be abnormal we have gained an immense advantage.

Some of the difficulties cannot be foreseen. It is impossible to know before labor starts what the character and efficiency of the pains will be. The relative size of the head and the pelvis in doubtful cases is acknowledged by the most experienced to be a difficult thing to determine and one of the most important things to know. Disproportion between the head and the pelvis is not a common complication, but a fatal result is the rule if it is unrecognized. The fact that so large a proportion of heads will go through if given time has a tendency to give us a false sense of security, so that when we do encounter an actual disproportion we are surprised to find after hours of labor that the head will not pass the pelvis; then a high forceps, late cesarean section or occasionally a craniotomy adds one or two more to the mortality list. In our efforts to reduce the number of such disastrous results in Cook County Hospital, a modification of the Mueller method has been developed which is of great value in selecting out those cases which must be delivered by the abdominal route on account of contracted pelvis.

This method consists simply in measuring the pelvis with the head that is to pass through it. This was first proposed by Peter Mueller, Germany, in 1885. Pressure was made on the head above the symphysis to see if it could be forced into the pelvis, and was used to determine the time at which premature labor should be induced. The modification of this method consists of making pressure on the breech of the baby in the fundus, instead of on the head over the sym-

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physis. This causes no pain, requires no unusual skill, though some practice may be needed if one does not habitually use the tips of the ischial spines to measure the progress of the head through the pelvis. The application of the method presupposes a knowledge and use of the following facts:

The important diameters of the head and the pelvis are the biparietal diameter and the true conjugate respectively. The successful passage of the head through the inlet depends upon the relative sizes of these two diameters. When the biparietal diameter has passed the true conjugate, bony resistance at the inlet has been overcome. When the lowest bony part of a moderately molded or unmolded head has reached a line drawn between the tips of the spines of the ischium, the biparietal diameter is passing the true conjugate. Allowance must be made for caput succedaneum and thickness of cervix or lower uterine segment in front of the head. If a head lies lower than this level or can be impressed below this point, it is positive evidence that no bony disproportion at the inlet exists.

The greatest number of serious pelvic contractions are found at the inlet. The cases in which the moderately molded or unmolded head can be impressed below or is found to lie below the ischial spines will rarely be found to offer impassable bony obstruction at the outlet.

With the use of this method it has been shown that the widely prevalent idea that the head at term cannot be pushed downward any appreciable degree with the cervix undilated and the bag of waters unruptured is untrue. In approximately 90 to 96% of all cephalic presentations at term, the lowest part of the head can be impressed to or below a line drawn between the tips of the spines of the ischium. This number, of course, includes those cases in which the head already lies at such a level.

With the patient in the lithotomy position on a table, not too high, the examining finger in the rectum locates the tips of the ischial spines and notes the relation of the lowest part of the baby's skull to a line drawn between them. The hand on the outside is placed above the breech of the baby and is sunk as deeply as possible toward the mother's spine, *the forearm parallel to the long axis of the mother.* Pressure is then made on the breech toward the inlet and the descent of the head noted with reference to the interspinous line, allowance being made for the thickness of the lower uterine segment, the cervix or caput succedaneum if present. To avoid traumatism and pain the pressure is begun gradually and after the maximum is reached is slowly released.

If the head cannot be impressed to the spines, an assistant places the palm of one hand flatly over the middle of the baby's back to prevent flexion, and the fingers of the other hand placed palmar surface downward above the head over the symphysis press the head downward and backward in the axis of the inlet, while the examiner makes pressure on the breech and notes descent with the internal finger.

If impression fails with the aid of an assistant, a trial is made under a short surgical degree of anesthesia.

With the use of the method in several thousand cases by internes in the prenatal clinic and in the wards at Cook County Hospital, there has never been observed bad effects of any kind whatsoever to mother or babe.

Four conditions in pregnancy are known to prevent impression of the head. These are—incomplete development of the lower uterine segment, excess of liquor amnii, and lack of cooperation on the part of the patient and disproportion. Further experience will no doubt reveal others which have not yet been determined. The best results are obtained the nearer to term the examination is made. It is usually taught that the lower uterine segment develops during labor. The lower uterine segment develops during pregnancy and reaches its highest point of development in pregnancy at term. During labor the contraction ring rises upward and the lower segment becomes correspondingly longer. The cervix becomes progressively shorter as pregnancy advances because the lower uterine segment develops at the expense of cervical tissue. Therefore, the length of the cervix indicates to what extent the lower uterine segment is developed. In primiparae the head often sinks into the pelvis two weeks before term when there is room enough in the lower uterine segment. In multiparae, on account of the relaxed abdominal wall, the head usually remains high until labor begins, but it may be pressed into the pelvis at or near term if all conditions are normal.

The excess of liquor amnii prevents impression for mechanical reasons and must be given consideration in cases in which the head cannot be made to enter. Oversensitive patients may require anesthesia, and the muscular relaxation is an aid in some doubtful cases in which voluntary resistance is not apparent. Not more than two or three cases in 100 require anesthesia.

Diagnosis of bony disproportion is made by the elimination of three of the causes of failure to impress the head. When the patient is in labor, at term and the cervix short, the lower uterine segment is developed sufficiently to allow the head to descend. If the bag of waters is ruptured or if there is only a small amount of water in the uterus as shown by abdominal examination, this cause is eliminated. If the patient is cooperative or if an anesthetic has been given to make the test, the third cause is eliminated—lack of cooperation. This leaves disproportion between the head and the pelvis as the probable reason for failure to impress the head. The diagnosis is further supported if the head overrides the symphysis to an abnormal degree or if signs of rickets as indicated by external pelvic measurements, a rachitic angle on the anterior wall of the sacrum, and a shortened, true conjugate diameter.

The use of the method begins in the middle of the ninth month, two weeks before term. The impression is first tried in the office. At this time the head approaches the size it will be at term and the lower uterine segment may be sufficiently developed to permit the head to settle into the pelvis or permit it to be impressed below the spine. If the head has already entered the pelvis the lowest part lies below the spines and no impression is needed. If, however, the lowest bony part of the head lies above the spines the head has not entered, the impression is tried to see if it can be pushed into the pelvis. If it goes below the spines we know that the head will pass. If the method fails at this time it is tried again at term. In 95 out of every 100 women at term it will be possible to make the diagnosis that there is no disproportion between the head and the pelvis.

The five out of each hundred women that remain are immediately placed in a group by themselves for special management and study. In these cases the mechanism is regarded as doubtful because the head cannot be impressed and we know that one or more of these may be a case in which the head cannot go through the pelvis with a live baby. And each case is conducted from the beginning with the knowledge that any one or more of them may need to be delivered by cesarean section. No vaginal examinations are made, rectals only. Impression is tried at various times during the early part of labor before and after the bag of waters is ruptured. The head that cannot be impressed below the spines after rupture of the bag of waters is generally meeting with bony resistance. This disproportion may be one of two kinds, either the mechanism is impossible or the pelvis may be large enough to permit the passage of an excessively moulded head after hours of labor with sufficiently strong and efficient labor pains. These are border line disproportions. It must be remembered that the mortality for the babies in such labors is very high on account of cerebral hemorrhage, asphyxia, and difficult forceps operations that may be necessary.

The final decision as to whether the head will go through the pelvis may be made by the test of labor, with a view to cesarean section before the time is passed for safe delivery. The diagnosis between absolute disproportion and border line disproportion is extremely difficult and often impossible, and it is my opinion that cesarean section is justified in border line disproportions provided the case has been properly managed from the beginning without vaginal examination or manipulation of any kind; when the head cannot be impressed below the spines after six hours of labor and after the bag of waters has ruptured. If this dictum was generally observed the salvage of babies alone would amply justify the few unnecessary cesarean sections that would be done.

If every doctor doing obstetrics would learn this method and use it as a routine in every case which comes under his care, two of the prominent causes of obstetrical disaster would be practically eliminated, namely, late cesarean section, and fatal high forceps operations. The use of this method would seem to be justified if it served no other purpose than to enable the doctor to select 95 cases out of every 100 which he delivers and know that in each one of them there is no disproportion between the head and the pelvis.

DISCUSSION

Dr. William Cooley, Peoria: This is a most timely

and valuable paper. It is highly instructive not only for one specializing in obstetrics but for the general practitioner as well. I trust that when it is published we will all take the time to study it carefully.

We know of no one procedure that is as effective and that does not require any expensive equipment in determining the relative size of the fetal head and maternal pelvis. For the past four years we have made use of this method and have found it very valuable in making a diagnosis of disproportion.

I would like to ask the essayist in cases where the diagnosis between absolute disproportion and borderline disproportion is extremely difficult and often impossible if x-ray pelvimetry and fetal cephalometry, using Ball's instrument, would not be indicated or can one get sufficient information without it?

We have used the instrument several times in the past three years and each time have found that it simply confirmed the diagnosis we had already made of disproportion. It also saves the patient from too long a test of labor with possible rupture of membranes and the dangers that accompany it. In each case we did a cesarean section after the results of the measurements indicated that a live baby could not be born the natural way.

Dr. Charles J. Heiberger, Peoria: I used Dr. Hillis' method and was impressed with a few things that he has mentioned that I would like to bring out. I asked him once before about posterior positions that did not impress very well. I have come to the conclusion that these posterior positions occur in slight disproportion. Another thing that I have come in contact with is the funnel shaped pelvis, the male type of pelvis in which I have been fooled as to the impression in an occasional case. I could impress the head but had considerable difficulty in delivering the patient.

Dr. William A. Simunich, Chicago: One of the theories why lightening occurs is that the lower uterine segment relaxes. If we take those cases in which the lower uterine segment is not relaxed and then give the patient an anesthetic, the segment will relax and we will have many more cases in which this method will be successful.

Dr. Otto H. Crist, Danville: I have watched Dr. Hillis' maneuver for many years and have watched his publications. I have tried to do this procedure and I cannot learn to do it. I can appreciate it in a trained institution with specialists. It is just like Potter's version or Dr. Reis' myomectomy. In their hands and in their institutions they are very safe procedures. They are procedures for specialists to work with and are not for the country practitioner. If I were to do a cesarean section when I could not impress a head into the pelvis I would be doing a great many cesarean sections, more than necessary. If the obstetricians in my community would do a section when they could not impress the head, cesarean section would be far more common than it is. Again I say the procedure is well in institutions where there are trained people to do it but the country doctors have not yet learned it.

Dr. David S. Hillis, Chicago (closing): I entirely agree with Dr. Cooley's suggestion that x-ray measurements of the pelvis and the head would be valuable in cases of borderline disproportion. With such facilities at hand x-ray diagnosis is a valuable aid in determining why a certain head cannot be impressed below the spines at term. When the head cannot be impressed below the spines all known methods to determine whether the pelvis is large enough to pass through, or not, should be used. It is true that this method must be learned as is any other procedure which we do in obstetrics and it requires a certain amount of practice. I am convinced, however, that any doctor doing obstetrics who practices the method on every patient he sees near term can learn to do it. Several of the residents at County Hospital have told me that they are not able to impress occiput posterior cases as well as when the occuput is anterior. This does not agree with my personal experience but I am not prepared to say that it is not true. With respect to funnel-shaped pelvis I have not encountered a pelvis in which the head could be impressed below the spines and which met with serious bony obstruction. Of course, a complete examination of the pelvis should include measurement of the pelvic outlet particularly if the head cannot be impressed.

ANEMIA AND JAUNDICE IN THE NEW-BORN

WALTER M. WHITAKER, M. D., F. A. A. P.
QUINCY, ILLINOIS

In this symposium on diseases of the newborn, it is well that we reserve a place for the discussion of icterus and anemia, since icterus of one type or another is such a common clinical finding in the neonatal period or first month of life. It is also fitting that we attempt to discuss anemia and jaundice concomitantly since there is such a close relationship between these two clinical signs, jaundice in the new-born resulting primarily from increased blood destruction, wherein hemoglobin is liberated from the red cells and broken down into bilirubin, a process which if severe enough leads to various pathological states, one of which may be anemia of the new-born.

Before discussing the clinical types of icterus in the new-born, it is well to review the mechanism of the production of jaundice. The more clear the conception of the diagnosis and etiology in any disease or symptom, the greater probability of its being dealt with successfully.

Many theories have been advanced to explain the commonest form of icterus in the new-born, namely physiologic icterus. This article cannot attempt to mention them all, but will merely

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bring to you the usual accepted mechanism responsible for icterus in the new-born.

The fetus really exists in a state of oxygen want or relative anoxemia. Pure oxygenated blood exists in only one vessel of the fetal circulation, the umbilical vein, coming from the placenta to the fetus. In the rest of the fetal circulation arterial and venous blood are mixed in the liver and heart. Nature produces an increase in red blood cells, due to the relative anoxemia, similar to that seen in persons residing at high altitudes, or in congenital heart disease wherein admixture of venous and arterial blood occurs. In the fetus, the liver, spleen, kidneys and tissue beneath the skin are the main blood-forming organs, prior to full development of the bone marrow at maturity. The unusual demand for red cells in the fetus seems to lead to the production of the embryonic cell forms, such as nucleated red cells and reticulocytes. It would seem that the fetus makes up for its oxygen want by an increase in red cells, really a polycythemia. Polycythemia has been produced in guinea pigs by keeping them in an environment of low-oxygen saturation. When in normal oxygen atmospheres, the polycythemia vanishes, and the icterus index rises with jaundice being evident.

Studies have shown that the bilirubin content of cord blood is several times greater than the content of the mother's blood, and of course the icterus index is correspondingly higher.[1] The cord blood of the new-born also gives an indirect van den Bergh pointing to a non-obstructive type of jaundice. It is the increase in bilirubin in the blood stream which constitutes jaundice of whatever type.

It is also a known fact the cord blood readily hemolyzes and that there is increased fragility of the cord and peripheral blood in infants. This latter observation is apparently due to the increased content of immature forms, namely nucleated red cells and reticulocytes.

It is apparent then that the infant enters this world with a polycythemia, usually showing red cells from five to seven million at birth with correspondingly elevated hemoglobin values. This high count tends to persist during the first week and then slowly falls. There is not any need for the increased red cells after birth. In the natural physiological process evident even in the adult, these red cells are destroyed and the hemoglobin liberated is broken down into bilirubin, the iron free pigment, and hemosiderin, the iron-containing pigment. The bilirubin value rises, and when it reaches a certain point, visible jaundice results. This corresponds to an icterus index of 8-15. As the red cells approach a normal level, the immature forms disappear from the blood and the fragility becomes normal. Such should occur at the end of the first week of life.

Other observations of importance dealing with the mechanisms of jaundice in the new-born are concerned with the efficiency of the liver in that period. By use of the bromsulphalein test, Herlitz[2] has shown a 20-30% retention of the dye occurring in infants in the first month of life. After four months infants excrete the dye as do adults. This retention of dye would seem to indicate liver immaturity with impaired excretory function.

Astrachan[3] notes that a true hemolytic jaundice must fulfill two cardinal points, namely, hyperbilirubinemia, and impairment of the excretory function of the liver. That the liver is impaired is suggested by the dye retention and by the fact that there are no pigment products in the stool in the first two or three days, in spite of a high blood content of bilirubin. Late or delayed ligation of the cord may play a part in increasing the degree of jaundice in the new-born in some cases. Placental blood in amounts of 50 to 60 c. c. entering the infant, with its high bilirubin content, and the increased number of fragile red cells of cord blood with corresponding increase in blood volume, may be easily a factor in increasing the tendency to marked jaundice.[4]

With the foregoing points in mind as the most probable mechanisms responsible for the most common type of jaundice in the new-born, namely, physiological jaundice, it is well that we now consider its clinical manifestations and then the differential diagnosis wherein a discussion of the other types and causative agents of jaundice in the neonatal period will be brought forth. The new-born period probably accounts for about 50% of the jaundice in children, and if physiologic jaundice is ruled out, is a serious symptom of disease with a mortality of about 60%.

Physiologic jaundice in the new-born is normally a mild form of jaundice appearing about the third day or later and tending to clear up in a few days. It is by far the most common type of

jaundice in the new-born. Butler[5] in a study of 1600 babies at Cook County noted 41% of the white babies as jaundiced between the 4th and 7th day. It is well to remember that it takes an icterus index of around 8-15 before clinical jaundice is recognized, and detection of jaundice depends upon good light, etc. The liver and spleen are not enlarged. Nucleated red cells are not noted in the blood after the end of the first week, but may reach 5-10% per 100 white cells on the first day. The jaundice clears rapidly. No bile is noted in the urine and the van den Bergh is indirect. The prognosis is always good and no treatment is needed. As a general rule, it is not difficult to diagnose this type of icterus, but in some cases in which it occurs early or persists longer than expected, or is associated with intracranial injury, one may worry that he is dealing with a more serious form of jaundice, namely, icterus neonatorum gravis. Whenever the clinician has ruled out the ordinary type of physiological jaundice as being the basis for a given case of icterus in the new-born, whatever the cause for the case at hand, the prognosis is a serious one. No other form of jaundice in the new-born carries a more grave omen of danger than that found in cases of icterus neonatorum gravis. Various studies show mortality rates in the realm of 80%. This form may occur sporadically, but is usually familial. Babies showing this type of icterus are usually born of normal pregnancies at full term. Jaundice in these cases is outstanding and may be present at birth or shortly thereafter. It is practically always seen before the third day when we expect to see the ordinary simple, non-serious physiological variety. The jaundice is intense, the infant appears gravely ill, being quite drowsy and prostrated usually. Death may occur quickly. The liver and spleen are both enlarged. There is bile in the stools and the urine also shows bile. These cases rarely recover spontaneously. There is usually an associated anemia, the outward signs of which are masked by the intense jaundice, but anemia is not absolutely an accompaniment. Extensive hemorrhages may occur from the mucous membranes or into the skin. Signs of cerebral irritation may develop in those showing kernicterus, with involvement of the basal ganglia.

Examination of the blood in infants with this type of jaundice is exceedingly important and lends findings almost pathognomonic. The presence of nucleated red blood cells in abnormal numbers is the classical finding. As previously noted, nucleated red cells should not appear in the peripheral blood of the normal infant after the first week. In these cases, however, one usually finds an increase in immature red cell forms, megaloblasts, erythroblasts, normoblasts and reticulocytes. Nucleated cells may reach 25,000 per cubic mm., but cases can occur with no nucleated red cells at all. The anemia usually noted is of a hyperchromic type, a high color index being evident. There is marked variation in size, shape and staining reaction of the red cells and Van Creveld[6] has noted that the characteristic cell is a macrocyte, indicating that the mean diameter of the red cells is increased in icterus gravis. The increase in abnormal blood cells is also seen in the leucocytic series, myelocytes and myeloblasts with numerous band forms of polymorphonuclears being seen. The van den Bergh in these cases shows a markedly increased indirect reaction, and also a direct immediate reaction, really a biphasic response which implies necrosis of the liver cells.[7] The stools contain bile and the urine also shows bile and urobilinogen.

The pathology noted in cases of icterus gravis consists primarily of a generalized yellowish tint of the various organs and serous surfaces with the essential findings being noted in the liver, spleen, kidneys and consisting of islands of extramedullary blood formation. Early forms of both red and white cells are noted. Essentially these cases show a persistence of, or reversion to, fetal blood formation. Degenerative changes have been noted in the liver cells with accompanying necrosis.

There are other clinical aids which should make the physician suspicious that he is probably dealing with a case of icterus gravis aside from the history he frequently obtains of its familial incidence. A very large placenta, yellowish amniotic fluid, or an infant covered with a golden yellow vernix caseosa should immediately place him on guard. Finding of a golden colored vernix caseosa is exceedingly important.

The diagnosis of any type of jaundice can usually be made if certain ordinary laboratory and clinical aids are applied in any given case. On clinical examination one must note the presence or absence of enlarged liver and spleen, color

of stools, and urine for bile pigment. The complete blood count gives evidence of the occurrence of any anemia or erythroblastemia. Syphilis is excluded by Wassermann reaction on the parents and the infant. The van den Bergh reaction is of value in that a pure indirect reaction excludes congenital obliteration of the bile ducts. Very rarely, familial acholuric jaundice may occur in infancy, so the fragility test may be useful to establish the presence of such a disease. Also, the red cells in this disease are usually microcytic.

Astrachan[8] sums up the diagnostic points in icterus gravis as follows:

a. A familial incidence of early, intense jaundice.
b. Pallor.
c. Increased number of nucleated red cells.
d. Enlarged liver and spleen.
e. Postmortem findings of marked hemotopoiesis in extramedullary sites.

This latter pathologic finding of marked persistence of embryonic blood formation in extramedullary centers has been considered widely in pediatric literature under the general term of erythroblastosis fetalis. As previously mentioned, icterus gravis may occur without erythroblastosis, but the prevailing tendency is to consider not only icterus gravis neonatorum, but also congenital hydrops fetalis and congenital anemia of the new-born as a triad, all having the presence of erythroblastosis as the prominent pathological finding. All three commonly show numerous nucleated red cells in the peripheral blood and at postmortem, centers of extramedullary blood formation. If edema is the paramount finding in the infant, it is considered congenital hydrops fetalis; if jaundice is most evident, icterus gravis neonatorum is attached; and if anemia is most prominent, the case is considered one of congenital anemia of the new-born. Erythroblastosis fetalis is a term coined to cover all three, and is usually manifested by jaundice, anemia, edema, enlarged liver and spleen, increased nucleated red cells and evidences of extramedullary blood formation. Erythroblastosis is not, however, entirely confined to the above named conditions. It may be seen rarely in congenital syphilis and also in sepsis. Care must be taken that the blood smear of a case of erythroblastosis be not considered as leukemia (nucleated red cells for small lymphocytes).

It is well that we mention briefly the clinical syndromes grouped under the general head of erythroblastosis fetalis, since they must be considered in any careful differential diagnosis of jaundice and anemia in the new-born period. First, congenital hydrops fetalis or edema of the new-born is usually manifested by generalized edema as the name implies, occurring in infants usually stillborn or dying shortly after birth. The liver and spleen are enlarged and anemia is evident. Jaundice is slight. Postmortem shows marked extramedullary areas of blood formation. Of the three conditions looked upon as erythroblastosis, many consider congenital hydrops fetalis as the most extreme degree of the process, the intermediate being icterus gravis, and the mildest or least severe, as congenital hemolytic anemia of the new-born. In this latter manifestation, anemia is the striking clinical finding with jaundice secondary. Here again there is marked increase in immature red cell forms, particularly a high reticulocyte count. Jaundice may appear quite late. Many of these babies with congenital anemia recover spontaneously, but the results of transfusion are remarkable. A familial incidence has been noted.[9]

One might question or wonder the importance of knowing whether erythroblastosis fetalis existed in a given case. Our main reason for determining its probable presence is because of the grave prognosis attached particularly to two of these clinical syndromes with which it is most often associated, namely, congenital hydrops, which is uniformly fatal, and icterus gravis, which according to Hampson[10] carries a mortality rate of 80%. The early diagnosis is further important because it is only by such that early treatment can be instituted. Treatment to date for icterus gravis with or without erythroblastosis is directed toward early blood transfusions or the use of maternal serum, as suggested by Hampson.[11] Hampson felt that the new-born serum was lacking in some antihemolytic substance until the infant's liver reached functional maturity, the substance having been supplied by the mother in utero. This substance is also present in adult serum. Accordingly, he treated eighteen infants with intramuscular injections of maternal serum with seventeen recoveries. Five to 10 c.c. of serum were given daily. It is a bit difficult to see where this method surpasses transfusions except for its simplicity.

It is not so much for the man in general prac-

tice to know about present theories regarding erythroblastosis, as it is important that he appreciate the probability of its occurrence in cases of anemia of the newborn, icterus gravis and hydrops fetalis, and if present, that he appreciate the gravity thereto and attempt to carry out immediate therapeutic measures to combat the syndrome. It always adds to one's ability to diagnose and treat disease if one appreciates the underlying theory, therefore I mention briefly that there are two schools of opinion, the American and the British, who hold diverse views as to whether erythroblastosis fetalis is a primary disorder with hemolysis secondary (American), or whether hemolysis is primary and erythroblastosis secondary (British). It is not necessary here to defend or discuss either theory, but certainly the latter seems more logical, whereby one considers hemolysis due to some cause as the primary process, which if marked or not checked, leads to rapid blood destruction, jaundice, anemia and the calling into play of the already overactive centers of infantile hematopoiesis with a resultant flooding of the peripheral circulation with nucleated red cells, constituting erythroblastemia, with the associated presence of numerous foci of extramedullary blood formation showing intense blood regeneration. The mere presence of extramedullary foci of blood formation is not enough to make the diagnosis of erythroblastosis, since extramedullary centers for blood formation exist in full-term infants, and especially in premature infants.[12] Erythroblastemia is found at birth and it is only when the numbers of immature cells are increased or excessive and persist beyond the first few days of life that the condition is considered abnormal. This normal status of blood in the first few days must be remembered before making any rapid conclusions as to the presence of true erythroblastosis fetalis.

It is seen then that the matter of the absence or presence of erythroblastosis is mainly a question of degree and rests upon pathologic findings primarily. The frequency of erythroblastosis has been estimated at one per four hundred births and accounts for 3-5% of new-born deaths.[13]

Lippman[14] has reported a case in the newborn showing 38% nucleated red cells per hundred white cells with no sign of prematurity or abnormality, only the presence of jaundice, which was considered as purely physiological. The presence of nucleated red cells in the blood at birth is more marked in prematures, in whom it may be said that a more embryonic type of blood exists than in the full term baby. Such cells are also seen in sepsis, congenital syphilis and congenital heart disease, or whenever unusual demands for blood regeneration are placed on the infant's hematopoietic system.

There are a few other conditions which one must consider as possible causative agents for icterus in the new-born. Probably next in importance are those cases due to sepsis, which is probably as important a factor as icterus gravis from the standpoint of prognosis. This type of jaundice tends to occur later than icterus gravis, the infant is ill usually with fever, vomiting and often diarrhea, and evidences of a focal infection, usually at the umbilicus or of the skin, alimentary, or pulmonary tract. Cyanosis associated with jaundice is suspicious of a sepsis. The temperature may be normal in these cases. Late deaths following tardy jaundice are more apt to be due to sepsis, while early deaths following appearance of early jaundice are more apt to be due to disturbance in the hematopoietic system.[15] It is likely that sepsis is really responsible for many deaths attributed to icterus gravis neoratorum. Careful study and more routine use of blood cultures in obscure jaundice cases are indicated.

The following case report illustrates some of the pertinent findings in a case of jaundice in the new-born due to sepsis.

Baby B., born at St. Mary's Hospital, Quincy, Illinois, in October, 1934. Normal pregnancy. Full term, only child. Weight 6 pounds and 10 ounces. No history of familial icterus. Artificially fed. Went home from hospital apparently well four or five days after birth. Brought back to the hospital at two weeks of age, when I first saw the child, with history of jaundice having been noted by grandmother when baby was one week old. Coincident occurrence of vomiting and diarrhea, with rapid weight loss. Bile present in the stools. The jaundice was progressively increasing.

Findings on admission were those of acute toxicity, anhydremia, generalized and intense icterus of a greenish hue, spleen felt two fingers below the costal margin and liver down one finger. No hemorrhages noted. Fontanelle not tense. There were numerous areas of bullous impetigo in the groins. The cord was off, but the umbilicus was not healed, showing a dusky, reddish discoloration of the skin for 4-5 cm. around the navel, and pus was exuding. Palpation revealed cord-like vessels ascending toward the liver. The temperature did not exceed 100° R. at any time during the hospital stay.

Laboratory work revealed a negative Wassermann, a sterile blood culture, a CO_2 of 28 vol. %, and a red

blood count of 5,980,000 with hemoglobin of 111% (dehydration), with 54% total polys—2% myelocytes, 20% stabs, 35% lymphycytes and 11% mononuclears. The red cells appeared normal. No normoblasts seen. The white count was 18,800. The urine showed a three plus albumin with numerous granular hyaline casts and no bile.

The diagnosis was that of a septic jaundice, secondary to infective omphalitis or bullous impetigo, with associated diarrhea and anhydremia.

Treatment consisted of antiseptics locally to naval, transfusions and molar lactate intravenously and subcutaneously, with protein milk by mouth. One month after entry the child was discharged well, with no jaundice persisting, with a normal blood picture, and gaining weight.

Congenital obliteration of the bile ducts must be considered in those babies showing early jaundice, of increasing intensity, associated with no bile (clay-colored stools), and an enlarged, hard liver. The van den Bergh reaction is direct, and there is an absence of nucleated red cells. The jaundice may be slight for awhile and bile may be present in the stools for some time, indicating a progressive obliteration of the ducts. The tendency to hemorrhage is quite great. Usually the child dies in a few weeks or months. If the obstruction is in the common duct, it may be possible to unite the gallbladder and bowel, but usually the underlying liver damage is so great that the results are valueless.

Atrasia of the duodenum may be accompanied by jaundice if the obstruction is below the ampulla of Vater. Signs of intestinal obstruction are most valuable in suspecting this condition, vomiting of bile, constipation, upper abdominal peristalsis and distension.

Congenital syphilis is rarely a cause of jaundice. Astrachan[16] noted only one infant with jaundice in 48 cases of congenital lues. The occurrence of erythroblastosis with congenital syphilis is evidenced by the following case.

Baby D.: Born in St. Mary's Hospital, October 30, 1932, and died November 4, 1932. There was one other living child in the family, with no history of miscarriages or stillbirths. Labor was normal with spontaneous resuscitation. No convulsions or cyanosis noted. Baby was premature, of seven to eight months' gestation, weighing four pounds twelve ounces at birth. No jaundice noted at birth. Bleeding was noted as a persistent ooze on the second day of life. There were several petechial areas on the scalp and one small blood blister on the hand noted at birth.

On examination the child was fairly well nourished with a slight general icterus. Fontanels were bulging and tense with a wide open longitudinal fissure. There was a prominent forehead with a suggestive sunken nasal bridge. The chest and heart were negative. The liver and spleen were both palpable. There was oozing of blood from the navel. Blood count on the day following birth revealed a WBC of 28,400, RBC 2,880,000, hemoglobin 63%, color index 1.1. A marked aniso and poikilocytosis with polychromatophilia and a nucleated red cell count of 7%. On November 1, 1932, the nucleated reds amounted to 22%, and on November 4, 1932, had reached a figure of 50 per 100 white cells. Bleeding time was three minutes and coagulation time, 15 minutes. Platelet count was 334,000 per cubic millimeter. A Kahn test was four plus on the blood. The mother's Kahn was also found to be positive. The baby's spinal test revealed increased pressure, with the fluid xanthochromic and slightly cloudy, with a cell count of 800, of which 94% were lymphocytes. Kahn test on the spinal fluid was two plus. There were no bacteria noted. Fresh and crenated red cells were present.

The diagnoses were as follows: 1. Congenital syphilis with erythroblastosis. 2. Prematurity.

The baby was given blood and sulpharsphenamine intramuscularly and fluids under the skin, but in spite of such therapy became increasingly more moribund and intensely icteric, with the blood smear showing increasing erythroblastosis, and died five days after birth. Postmortem examination was done which revealed the following cardinal findings: A markedly jaundiced baby with areas of purpuric hemorrhage scattered over the body. Heart and lungs were essentially negative. The liver weighed 105 grams and microscopically showed many areas of arythroblastosis, with numerous normoblasts and megaloblasts and associated areas of leukopoiesis with young white cells. There was much pigment in the liver cells. No spirochaeta pallida were noted in the liver. The spleen was also markedly enlarged, weighing 15 gms., with similar deposits of pigment and similar areas of erythroblastosis as were found in the liver. The kidneys were normal. The pancreas also showed areas of erythroblastosis. Examination of the femur showed a regular line of ossification, which was not yellow, but was clear and translucent. Syphilitic osteochondritis of the femur was not present. Examination of the brain revealed a large blood clot at the base with numerous hemorrhagic areas over the cortex. Pathological diagnosis was that of erythroblastosis fetalis (liver, spleen, and pancreas) and intracranial hemorrhage. In spite of the negative findings of any spirochetes in the liver, and the negative evidence of lues as manifested in examination of the femur (syphilitic osteochondritis will frequently not be detectable at birth) I feel certain that this case was a case of congenital syphilis associated with erythoblastosis, which was the cause for jaundice in the newborn.

The important diagnostic aids are usually: Wassermann reaction on the parents and infant, clinical findings of lues in the infant, x-ray of long bones, and search for spirochetes in the tissues.

Winchel's disease produces intense jaundice and bronzing of the skin and the presence of hemoglobin in the urine, with chocolate colored

discoloration of the blood and rapid anemia. Cyanosis and hemoglobin products in the urine are the main points in distinguishing it from icterus gravis.

As a final remark on jaundice in the new-born, prematurity with its associated greater tendency to embryonic blood responses must be mentioned. Normally we expect a premature baby to show an earlier, more severe and persistent type of physiologic icterus than the normal infant. This tendency to excessive hemolysis in prematures makes it very difficult to rule out icetrus gravis in prematures. Usually no splenomegaly is present and the infant is not gravely ill as in icterus gravis.

As noted previously, I have mentioned anemia of the new-born as one of the triad of syndromes grouped under the head of erythroblastosis fetalis. Congenital anemia in the new-born does occur with and without erythroblastosis, in some cases there is apparently no evident blood regenerative activity with anemia resulting. Rarely are babies born anemic. It is usually agreed that nutritional deficiency in the mother does not lower the hemoglobin level of her child at birth, but does lessen the infant's iron store. Mackay[17] states that there are two main causes of anemia in the new-born, bleeding and excessive hemolysis. Approximately fifty cases of congenital enemia of the new-born have been reported, it being a quite rare disease. Some cases of congenital anemia, as noted above seem to be due to failure of blood regeneration or maturation, and the infant shows no evidences of excessive hemolysis, such as jaundice, high bilirubin, etc. These cases are the ones in which one would expect the greatest value from liver and iron. The anemia is of a hyperchromic type, being present at birth or in the first two weeks of life, in infants born of healthy parents. Proven cases of blood diseases, such as pernicious anemia and leukemia in the mother are not transmitted to the infant. The anemia has been reported in several offspring of the same parents and in families where one child may show icterus gravis and the next anemia of the new-born. The disease is characterized mainly by intense pallor, which may be masked early by jaundice. Jaundice is not, however, a constant accompaniment. The liver and spleen are usually enlarged and there may be slight edema. Fever is not usual. The infants do not seem very ill, and recovery is often spontaneous and complete between the third to sixth month. About 10% die. Autopsies on fatal cases have usually shown marked erythroblastosis, but Cohen[18] has felt that erythroblastosis is not a necessary finding. The diet or health of the mother does not seem important. Iron and liver extract have been used in treating these cases, but it is hard to evaluate such treatment. There is no evidence of iron deficiency. Certainly transfusions seem wise if the anemia is severe, and one cannot imagine handling such cases without such aid.

Huenekens[19] reported a case of anemia in the new-born treated by transfusions with frequent rises and falls in the red count and hemoglobin, which finally seemed to be prevented by liver extract intramuscularly, one c.c. every two to three days.

Krost[20] treated three cases of anemia of the new-born associated with severe jaundice with daily injections of human serum, 10 to 12 c.c. intramuscularly from one to four days, after the theory and method of Hampson, with marked improvement.

Limitation of this paper to the discussion of anemia in the new-born era, of course tends to eliminate that major group of deficiency or nutritional anemias so common in the later months of infancy, the anemia of scurvy and the anemia of prematurity, which usually comes at two to four months. The neonatal period also eliminates the anemia secondary to infection and blood dyscrasias, which of course may appear in the first month of life, but do so very rarely. The so-called constitutional hemolytic anemias, such as Cooley's erythroblastic anemia, sickle cell anemia and congenital acholuric icterus are mentioned because of their congenital element, but they rarely lead to clinical significance in the first period of life.

In conclusion, I have attempted to bring to you:

1. A regime of the mechanisms underlying physiological icterus in the new-born.

2. A discussion of the etiological factors productive of jaundice in the new-born with essential points in the differential diagnosis of the various clinical syndromes associated with jaundice.

3. Attempt has been made to stress the simple diagnostic, clinical and laboratory aids which every physician should have at his command, as

being sufficient to allow arrival at a correct and satisfactory diagnosis in the usual case of jaundice in the new-born.

4. Attempt has been made to clarify and stress the inter-relationship between congenital hydrops, icteric gravis and anemia of the newborn, with the usual pathological accompaniment of erythroblastosis. A plea is made that the obstetrician occupies the strategic point in the diagnosis of these conditions in that he should look for and recognize the importance of a yellowish vernix caseosa, yellowish amniotic fluid and an enlarged placenta usually associated with anemia, jaundice, edema, hemorrhages. Any man delivering a baby showing any of these signs should immediately examine the child for an enlarged liver and spleen, and if such is present, the suspicion of erythroblastosis of the new-born should be entertained. Immediate examination of the stained blood smear will aid in clinching the diagnosis. Early recognition with early treatment by transfusions or whole blood serum will save many of these babies.

5. A case history illustrating the findings in a case of jaundice due to sepsis, and another case showing erythroblastosis associated with congenital syphilis are reported.

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DISCUSSION

Dr. Gerard N. Krost, Chicago: I want to stress what Dr. Whitaker has said that the obstetrician should be on the lookout for the symptoms of icterus gravis by noting the bile stained amniotic fluid and enlarged placenta.

Another point of importance that he has not stressed so much is the communal incidence. This condition occurs in subsequent siblings. There may be one or two normal infants and then the next baby have one of these conditions: icterus gravis, stillbirth with edema, congenital anemia. If a woman has given birth to a baby with any one of these conditions, any subsequent infant should be watched very carefully and treatment instituted before symptoms arise.

I do not want to go into the etiology because that is very mixed up, but if I heard correctly, Dr. Whitaker ascribed the symptoms to the excess amount of bilirubin and blood destruction in this condition. I believe that that is hardly true because in congenital obliteration of the bils ducts there are very few symptoms. The probabilities are, as gathered from most of the literature, that it represents both a liver damage and a myelocytic damage. In other words, something affecting the blood forming structures and liver.

The treatment, of course, can be by whole blood or serum but, after reviewing the literature, some claim that whole blood injections fail to cure these infants. It is probable that transfusions should be used early, starting with whole blood or blood serum injections while waiting for typing, etc.

Dr. A. H. Parmelee, Oak Park: I think this has been a very excellent discussion of the subject. I want to emphasize the point that probably all new-born infants have icterus neonatorum in the sense that they have a blood icterus. There is an increase of bilirubin in the blood of every new-born infant, but I think it is not strictly true that the degree of bilirubinemia is an index of whether or not skin icterus will be observed. A good many experiments have shown that there are many other factors that account for the presence of skin icterus, and that is why our statistics are so "cock-eyed" in regard to the incidence of icterus neonatorum. If you try to observe icterus neonatorum and account for the presence or absence of it, your results will depend upon when you examine the infant, the light, the amount of subcutaneous fat, the character of the skin, the amount of edema present, the kind of pigmentation of the skin, and other factors. Any of you who have seen many negro infants know how difficult it is to tell whether they are yellow or not. I think all we have to do is to remember that all new-borns have bilirubinemia physiologically, and whether they have skin icterus is not so important. When Blackfan's work on Erythroblastosis came out I found that all of my interns at the County Hospital were making blood slides on every case that showed icterus and they were all finding that the babies had erythroblastosis of the new-born. We must remember that erythroblastosis is normal in the new-born infant in the first few days. A normal amount of erythroblasts must be found in the normal infant and the presence of a few of these cells does not by any means indicate erythroblastosis. Premature infants almost invariably have visible icterus of the skin and sometimes to a marked degree and even then it may be within physiologic limits.

Dr. Walter M. Whitaker, Quincy (in closing): I think Dr. Krost's remarks about early treatment before symptoms ensue is a very excellent point, in those newborn infants where one is led to suspect the possibility of icterus of a gravis type developing.

I steered away from the etiology but brifly,

since it was brought up, I studied the literature fairly carefully and I feel that I side in with the British idea that hemolysis is the initial factor. The primary cause of hemolysis remains unknown but the blood picture is that of a marked regenerative process such as we might see in the blood of any infant with syphilis or sepsis or any condition in which there is marked destruction of the blood which calls for an increased regenerative process. The American theory is the reverse. Most American writers believe that erythroblastosis is a primary phenomenon and hemolysis a secondary factor.

I am very grateful to Dr. Parmelee for his remarks about icterus being a constant finding in every newborn baby. It is a matter of detecting its presence. The points about normal blood pictures must never be forgotten and we must remember that premature new-born infants may show 7 to 10 to as high as 38% nucleated red cells, but when these findings persist over a week and in percentages ranging as high as 50%, certainly then one is justified in making a diagnosis of erythroblastosis.

FEEDING OF FULL TERM INFANTS DURING THE NEW-BORN PERIOD

GERALD M. CLINE, M. D.

BLOOMINGTON, ILL.

In attempting to present such a broad subject, one must consider three people who are most involved and around whom I wish to build my part of this symposium; namely, the baby, the mother, and the doctor.

Theories on infant feeding have been widely discussed during the last twenty-five years by both the general practitioner and the pediatrician; but we still have the problem of how to manage the new-born to make him a happy, satisfied, growing baby causing as little mental and physical worry as possible to the mother and giving, because of its physically fit condition, satisfaction to the doctor employed. In other words, practicability is the keynote; with satisfactory results regardless of so many theories.

Given the new-born as a feeding problem, first of all the doctor must decide whether the infant is to be considered as either a normal or a pathological case and must then treat him accordingly.

The normal new-born must be defined as the infant whose general appearance, color, cry and actions are normal, who has ability to nurse, retain food and excrete its by-products, and whose general physical examination meets the standards of normal. Because most babies born are of this type, they must be considered first.

The new-born period must be defined. This seemingly has no standard measure of time; however, I like to consider the new-born period from birth to one month of age. Usually by that time any possible congenital conditions or any abnormalities have made themselves known.

The normal new-born then during the first month of life presents three practical problems: proper food, weight gain, and happiness.

I feel that the dehydration period of the first few days is of great importance. Water, or water and glucose, will control dehydration. As you know from a weight loss standpoint there is very little appreciable difference between water and cow's milk feedings. Therefore, I routinely give a Beta Lactose solution, starting with a feeding a few hours after birth and continuing with it after each breast feeding throughout most of the first week of neonatal life. By this time, if breast milk is sufficient, the Beta Lactose solution is stopped. I am confident that this procedure increases the number of successful breast fed infants. First of all the baby is not filled up with a formula that tastes sweeter than breast milk and makes him so lazy that he refuses to nurse.

Needless to say, breast milk still is the most desirable food. The technique of breast feeding continues to be an urgent problem. As contented cows make good milk, so contented mothers nurse more infants. If there is not sufficient breast milk, a very helpful procedure is the thorough emptying of the breasts after nursing. The electric breast pump is an invaluable addition to the equipment of any nursery. Its usage also stimulates the secretion of the breast as well as empties it.

Although I do not intend to discuss in this paper specific formulae for complementary and supplementary feeding, I definitely believe that evaporated milk has been proven the milk of choice as a complementary or supplementary feeding, if such a feeding is needed. However, I do admit that the percentage of incompatibilities even with this milk is much higher than generally conceded. The most important practical procedure that I have learned and followed routinely during the last five years is abstaining from the feeding of any form of cow's milk as long as possible to the new-born. According to physiologist, the generalization is made that the gastric mucosa of the new-born infant is suffi-

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ciently developed to secrete normal gastric juice with the exception that it is slightly lower in acidity and ferment concentration (pepsin and rennin). The pepsin splits proteins into simpler and more soluble proteins, and rennin separates the milk proteins preventing the more rapid passage of casein into the intestines. Under normal condition very little, if any, absorption occurs in the stomach. In the intestines then the digestive products are almost wholly absorbed. It is also believed that the mechanism of alimentary food sensitization and intoxication is not simple. Therefore, I firmly believe that artificial feeding during the first few days of life sensitizes many infants to cow's milk protein and is a forerunner of colic, eczema, exaggerated vomiting and other allergic conditions evidenced in later life.

The vitamin story must not be neglected. During the last few years the incidence of infantile tetany and scurvy has been greatly reduced. Recent literature, however, leads us to believe that vitamins C and D deficiencies in slight degrees are often apparent. Certainly the early administration of these vitamins is very advisable. Along this line, with my particular interest in the allergic infant, I am quite confident that orange juice is a very common reactor in the new-born. The fish oils likewise, though less commonly, may be the cause of gastrointestinal disturbances. In fact, the ingestion of either may excite the nasal mucous membranes causing symptoms of acute coryza in the very young. Artificial foods containing orange juice and cod liver oil at times must be considered as potential factors in allergic disturbances. The crystaline vitamins C and D products on the market today are, to my way of thinking, a better medium of supplying vitamins to the allergic or potentially allergic infant than the giving of orange juice and cod liver oil.

The frequent cause of colic and vomiting is the swallowing of air during the act of nursing. This particular phase of the feeding process has never received enough attention. It should become a prime feature in the education of the nurse and the mother. They should realize the necessity of the mother being in an upright position during the breast feeding, the holding of the bottle by an attendant during the bottle feeding, and the placing of the baby on the shoulder for it to belch one or two times during the feeding process and always after the feeding is ended. The importance of this procedure cannot be overemphasized since milk regurgitated through the nasal passage is often the cause of respiratory infections and otitis media.

Feeding time schedule has become a debatable subject among mothers, nurses and doctors. I cannot subscribe to maintaining rigidly a three or four hour schedule, to omitting night feedings routinely, to allowing only a limited nursing time; which regulations we pediatricians so oratorically taught mothers and nurses not so many years ago. The farmer does not carry out a strict routine in the successful nursing of domestic animals and after all Mother Nature is an excellent teacher. I must say, however, that I do not approve of the unscientific way of handling the feeding of the new-born that was practiced years ago and still is done among certain classes of people. There is a happy medium which can be maintained.

The pathological new born, though much fewer in number than normal new-born, present many and more varied problems, such as cerebral insults, icterus, anemias, deformities, severe vomiting and diarrheas.

Most of the essentials in the feeding of the normal infant apply to the problems of the pathological child. With him, as with the normal child, the water balance is the paramount issue in the beginning. Our recent knowledge of giving additional fluids extra orally has been our greatest help in maintaining this. No infant need die of fluid starvation. The feeding of choice is breast milk. The recent process of freezing breast milk has aided in making this possible. Other successful accessories for feeding the pathological child are oxygenated incubators, Brecht feeders and nasal catheters.

Three important practical points for the welfare of the infant are worthy of mention. The obstretician should teach the prospective mother the proper care of her nipples during and after the prenatal period in order to insure breast feeding. She should also be informed of the importance of clean hands in caring for the child and warned of the danger of permitting outsiders to handle it, thereby protecting it from impetigo and other infections. She should, if possible, have the help of a graduate nurse during the adjustment period of one or two weeks after her return from the hospital. This can be accomplished by foregoing the "special nurse's" care during hospitalization, where she and the baby may receive adequate service from the general

hospital nursing staff. I can not overemphasize the necessity of competent care for the faltering three or four weeks' old infant, who all too often falls into the hands of friends, neighbors, or relative at the most critical period in his early life.

How then may the doctor be assured of success in getting the mother to carry out his program for the new-born? The building of the parents' confidence in the doctor is the first essential. This can best be done during the prenatal period. That is the time for the doctor to counteract the morbid stories of friends and relatives which all too often weigh heavily upon the mind of the pregnant woman. A kindly interest in her and the personal regard for the child when it arrives will establish the confidence necessary to obtain her co-operation in carrying out the doctor's program for the child's proper development. All of this should insure a healthy baby, happy parents, and consequently a gratified doctor.

DISCUSSION

Dr. C. G. Grulee, Evanston: As Dr. Cline indicated, I am a nut on the subject of breast feeding, but I want to tell you some of the experiences we have had at Presbyterian Hospital in respect to this. Some years ago the interns on the pediatric service were sent into the homes of the out-patient obstetric service to take care of new-borns. After keeping case records of these patients, we found that these children, at least 98% of them, were leaving the lying-in period on the breast. On looking over the records in the wards of the hospital, we found that less than 50% of the women of the same category were nursing their babies when they left the hospital and we began to look into the situation. We found out that if we did not give these babies bottles or artificial food for the first week, we were able to raise the percentage of children that went out on the breast to something like 90%. That there was such a difference between 98 and 90% might be due to the fact that more of these cases in the hospital were pathologic, but the fact still remains that a determined effort in the hospital, to see that the child was hungry and developed the breast, proved to us that these mothers could nurse their babies under proper conditions. In other words, it seems to us the secret of nursing a baby is not to give it a bottle in the first few days of life and thus satisfy its hunger and prevent it from developing the breast in the only way in which the breast milk will be developed and that is by suckling.

Another thing is in respect to skin conditions of the new-born. There has been a great deal of work done regarding bathing the new-born and how the skin should be protected against impetigo, etc. Some years ago Dr. Sanford started out on a definite problem to determine what would happen to the skin of a new-born if it were taken care of in various ways. He has tried out several ways and has found that the erythema and slight papular conditions which occur in the new-born occur in the same percentage of cases under all conditions and he has found that if you do not bathe the baby for the first week it reduces very markedly the infectious conditions in the skin, so much so that, while we had had no impetigo in that period we had had pustules repeatedly, but in his trial there has developed one pustule in one baby in a period over six months to a year. That means that probably interference with nature is largely responsible for infectious conditions of the skin rather than the prevention of such infections by overmedication in the form of antiseptics. I think it is interestng that in Dr. Sanford's experiences, the group in which he used the antiseptic oils developed the largest number of skin infections.

Dr. T. P. Saltiel, Chicago: I think the mother should watch the cow and learn how the calf takes its feedings. I believe in regularity of feeding and I think the four hour interval is ideal. If she should watch the cow she would notice that there is a definite regularity of feeding there. The mother should not be made a slave to her baby, as that defeats our purpose of forming good habits.

Dr. A. J. Fletcher, Danville: I wish to take issue with the Doctor. If he has ever observed the cow, he has noted that the cow does not let the calf nurse every time it wants to.

Dr. Gerald M. Cline, Bloomington (in closing): Although I do feed Beta Lactose water or plain water by bottle the first two or three days, I have no doubt that Dr. Grulee's suggestion of refraining from the use of anything by bottle or nipple would be a good routine to follow.

I am also happy to know that Dr. Grulee advocates no baths. For the last two years in one of our hospitals the baby gets its first bath as a demonstration to its mother the day of discharge. We are confident that we have reduced the incidence of skin troubles in our nursery.

Dr. Saltiel, most mothers like to know the "reasons" for your ideas. If you as the doctor have built up her confidence in you she will accept these ideas, regardless if some of them are compared to animal life. A great many new-borns are hungry and will be happier if fed when hungry and not by the watch. There are, of course, exceptions to all rules.

In closing I am sure several of us during the last fifteen years have been called upon to examine babies at state and county fairs. Fortunately for all concerned this "baby show" is becoming a thing of the past. The doctors' office is a much safer and better examining room. Perhaps you agree that most infants from birth to six months are so perfect that a winner is hard to select, but in the age group from six to nine months up to eighteen months to two years, the blue ribbon baby is even sometimes not worthy of selection. Therefore, something goes wrong after the sixth month period. Education of the parents and more attention by the medical profession will further benefit our subject the "baby."

I wish to thank the discussants.

PULMONARY EMBOLISM AS THE PRIMARY CAUSE OF DEATH IN 10,650 NECROPSIES

J. D. KIRSHBAUM, M. D., M. S., AND
F. L. SHIVELY, JR., B. S., B. M.
CHICAGO

Pulmonary embolism frequently is a subject very prominent in the minds of surgeons. The conditions exemplifies one of the most dramatic catastrophies, especially following surgery.

Recently our interest has been stimulated in this subject because of two cases that were encountered post-operatively. A review of the autoptic cases of pulmonary embolism as the primary cause of death at the Cook County Hospital from January, 1929, until March, 1938, was made. In studying the cases many interesting features were noted.

In the years 1929 to 1938 there were 10,650 consecutive autopsies performed at the Cook County Hospital. In this group of consecutive necropsies 25 cases of pulmonary embolism were encountered. There has been much literature written upon this subject and it is the purpose of this paper to add our statistics to those previously published. In an article recently published by Barnes,[1] he quotes McCartney's series of 14,419 cases, and Collin's series of 10,940. In the former, the incidence of pulmonary embolism was 2.72%, and in the latter 2.07%. A combination of these two series makes a total of 25,359 cases and an incidence of 2.36%. In our series of 10,650 cases the incidence of pulmonary embolism was found to be 0.234%. In addition to the above, our figures have been added, making a total of 36,009 cases and an incidence of 1.67%. It appears evident from the above figures that in a large series of cases coming to autopsy the incidence is infrequently encountered.

Included in our series were both surgical and medical cases. There were 14 or 56% of the total cases that occurred post-operatively (see table 1). In 11 or 44% of the cases there was no associated surgery (see table 2). The type of operation was found to be almost entirely limited to the abdomen or pelvis. Six cases were of a gynecological nature. Two were supracervical hysterectomies, one salpingectomy and oophorectomy, one panhysterectomy, one supracervical hysterectomy and salpingo-oophorectomy, and a laparotomy for adhesions caused by a previous myomectomy and appendectomy. Three had had appendectomies; two herniotomies; two post natal; and there was one case following the closure of a ruptured duodenal ulcer. The number of days post-operatively in which the disaster occurred varied rather markedly, the least number being seven and the most 20 days.

As to the age of the patients in our group of cases it was definitely noted that there was a marked increase in the number of individuals past 40 years of age. The ages varied considerably, however, the youngest being 16 years of age, the oldest 66 years of age, the average being 41.4 years of age.

As to sex, 71.4% of the cases were found in females, five white and five colored; 28.6% in males, three white and one colored; 56.8% of the cases occurred in the white race and 43.2% in the Negro race.

The incidence of cardiac disease in our surgical cases was rather remarkable. McCartney[2] states that the incidence of pulmonary embolism is doubled when there is a coexistent damaged heart. Our findings closely approximated his results. In our series there were nine or 64.3% of the cases in which there was an associated heart condition. There were five or 35.7% of the cases in which there was no associated heart findings. The condition of the heart at autopsy varied from a slight to a marked eccentric hypertrophy.

Another interesting feature was the determination of the number of cases in which there was an accompanying venous thrombosis. 11 or 78.5% showed evidence of thrombosis, while three or 21.5% showed none. The original sites of the thrombus found, in order of their frequency, were the veins in and about the pelvis, namely, the common, internal and external iliacs, hypogastrics, femorals, ovarian, uterine and the periprostatic plexus. The source of the embolus could not be determined in one case.

In the surgical group of 14 cases the location of the embolism was found as follows: in 10 or 75.7% of the cases the embolism was located beyond the bifurcation of the pulmonary artery occluding both branches; three or 21.4% of the cases occurred in the left branch of the pulmonary artery; one or 2.9% of the cases occurred in the pulmonary artery proper before

From the Department of Pathology, Cook County Hospital, Dr. Walter Schiller, Director, and the Department of Surgery, Northwestern University Medical School.

its bifurcation; and, in none of the cases was the right branch of the pulmonary artery alone occluded.

The medical group of cases in our series not associated with surgery were quite similar to the surgical cases in some respects. The average age in this group was 54.5 years, the youngest 33 years of age, and the oldest 79 years of age. These figures were slightly higher than those of marked dilatation of all the cardiac chambers.

An associated venous thrombosis was found in nine or 81.8% of the cases. There was no evidence of thrombosis in two or 18.2% of the cases. The primary location of the thrombus varied but, as in the surrounding group, it was most commonly found in the veins of the lower abdomen and pelvis. In order of their frequency they were as follows: the common, internal and external iliac, femoral, and the hypogastric veins. Mural vegetations were noted in the right auricle in a case of rheumatic heart disease with an associated fibrillation, and in the superficial veins of the lower extremity. There were two cases in this group in which no primary source for the embolism could be determined.

The location of the embolism was as follows: eight or 72.7% occurred beyond the bifurcation

TABLE 1. SUMMARY OF 14 CASES OF PULMONARY EMBOLISM
(Surgical)

No.	Sex	Age	Race	Condition of heart as to hypertrophy	Pulmonary Artery or its branches involved	No. of days post-op.
1.	F	36	C	Marked	Right and Left	15
2.	F	30	C	Slight	Right and Left	10
3.	F	48	W	Moderate	Right and Left	14
4.	F	35	C	Slight	Right and Left	10
5.	F	40	C	Marked	Right and Left	20
6.	M	66	W	Slight	Right and Left	8
7.	F	18	W	Normal	Right and Left	9
8.	F	40	W	Slight	Left Branch	12
9.	F	36	W	Normal	Pulmonary Art. proper	8
10.	F	54	C	Moderate	Right and Left	17
11.	M	16	C	Normal	Left Branch	8
12.	F	56	W	Normal	Left Branch	16
13.	M	53	W	Moderate	Right and Left	9
14.	M	48	W	Normal	Right and Left	7
	M— 4	Aver. Age	C—6	Heart c changes —9	Right and Left —10	Aver. No.
Totals	F—16	41.4 yrs.	W—8	Heart c no changes —5	Right branch — 0	of days
					Left Branch — 3	post-op.
					Pulmonary Art. proper — 1	11.6 days

TABLE 2. SUMMARY OF 11 CASES OF PULMONARY EMBOLISM
(Non-surgical)

No.	Sex	Age	Race	Condition of heart as to hypertrophy	Pulmonary Artery or its branches involved
1.	F	69	W	Marked	Right and Left
2.	F	62	C	Slight	Right and Left
3.	F	33	W	Slight	Right and Left
4.	F	46	C	Moderate	Right and Left
5.	M	41	W	Slight	Right and Left
6.	F	39	C	Slight	Left Branch
7.	F	39	W	Marked	Right and Left
8.	F	79	W	Marked	Right and Left
9.	F	62	C	Normal	Pulmonary Art. Prop.
10.	F	67	W	Slight	Right Branch
11.	F	57	W	Normal	Right and Left
	M— 1	Aver. Age	C—4	Heart c changes —9	Right and Left —8
Totals	F—10	54.5 yrs.	W—7	Heart c no changes —2	Right Branch —1
					Left Branch —1
					Pulmonary Art. Prop. —1

the surgical group of cases. Of the eleven cases, 91% were females, six white and four colored; 9% were males, one white and none colored, or 6.36% were white and 36.4% colored.

The incidence of cardiac disease in the medical cases was even more striking than in the previous group of cases. Nine or 81.9% showed some organic change, while two or 18.2% showed no change. Here also the pathology varied from a slight eccentric hypertrophy of the heart to a

of the pulmonary artery occluding both branches; one or 9.1% in the right branch; one or 9.1% in the left branch; and one or 9.1% occurred in the pulmonary artery proper before its bifurcation.

In the years 1929 to March, 1938, it was observed that the greatest number of cases occurred in March and October (see Fig. 3). This

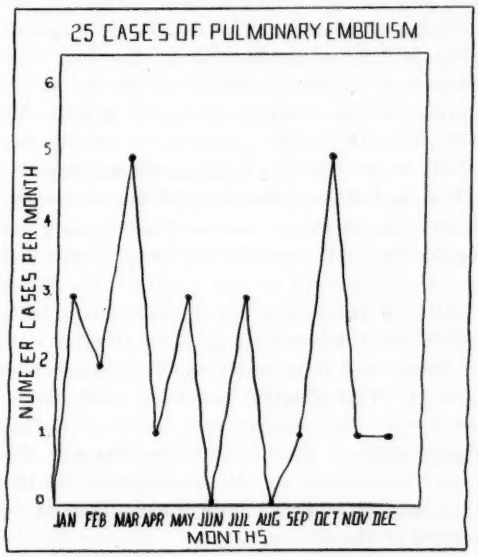

Chart 1. (Figure 3). Note that during the months of June and August there were no cases of pulmonary embolism, while March and October showed the largest number (five cases each).

was an interesting observation in that these are the months in which the greatest climatic changes occur. The peaks were in accordance with the observations of Peterson.[3] He points out that it is at these times of the year in which the "critical points" are reached. The extreme variations in the temperature, whether it be hot or cold, and the fluctuating barometric pressure, whether it be high or low, produces what he terms an "episode." He also states that the greater the variation between these two factors, the more likelihood that an episode may be precipitated.

The cases were plotted in graphic form and noted that there was a marked difference in the temperatures and barometric pressures. The last two surgical cases encountered occurred during an "episode." One may suggest that there is some correlation to Peterson's studies (The Patient and the Weather). The question at once arises: Were these mere coincidences or was there some association to the climate? More observations will have to be made before such a question can be answered to everyone's satisfaction.

Discussion. Infection and venious stasis were the two most frequent findings at necropsy in the surgical group of cases. Marked dilatation of the cardiac chambers, emphysema and passive congestion of the lungs were observed in the majority of the cases. In the non-surgical group of cases, hypertensive heart disease and a sluggish circulation precipitated thrombosis in the pelvic veins and in the iliac veins or its branches.

In the surgical group of cases, early mobilization of the patient may often avert the formation of thrombi and thus avoid the catastrophy of pulmonary embolism.

Summary

In a series of 10,650 necropsies, 25 cases of pulmonary embolism as the anatomical cause of death were encountered.

There were 14 surgical cases and 11 non-surgical cases. Death usually occurred seven to 20 days post-operatively. Infection and cardiac failure were the usual precipitating factors in the formation of pulmonary embolism. Improvement of the circulation and early mobilization of the surgical patient will frequently prevent embolic occlusion of the pulmonary artery or its main branches.

The age incidence varied greatly. The youngest patient was 16 years of age, while the oldest patient was 79 years of age. The average age for our series was 46.8 years; 96% of the cases occurred above 30 years of age; 64% of the cases occurred above 40 years of age; 40% of the cases occurred above 50 years of age.

20 or 80% of the cases occurred in females, while five or 20% occurred in males. 60% occurred in the white race, 11 females and four males; 40% were negroes, nine females and one male.

In the total series there were 18 or 72% of the cases in which there was some associated heart changes. Seven or 28% of the cases showed no heart changes.

The thrombus was located in both branches of the pulmonary artery in 18 or 72% of the cases; the right branch in one or 4% of the cases; the left branch in four or 16% of the cases and the pulmonary artery proper in two or 8% of the cases.

An associated venous thrombosis occurred in

19 or 76% of the cases. There was no accompanying venous thrombosis in six or 24% of the cases.

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7845 Essex Avenue.

CASE FINDING; A METHOD IN THE CONTROL OF TUBERCULOSIS

H. R. Edwards, M. D.

NEW YORK, N. Y.

The ultimate control and eradication of tuberculosis is primarily dependent upon the location of the unknown case, and the subsequent supervision of that case to prevent further spread of infection. If we had no further knowledge than that now available there is no reason why with the proper application of methods the disease cannot be eradicated. The fundamental problems are the same for any community. The procedures, however, will vary according to the extent of the disease in a given community.

There appears to be some difference of opinion among medical men as to the importance of tuberculosis infection. Some contend that infection confers at least a degree of immunity. As a matter of fact various methods have been utilized to produce artificially such infection with the hopes of gaining an immunity. Others feel that no immunity is conferred, and a careful appraisal of the literature will certainly indicate that if immunity does exist (and I do not subscribe to that theory) it is far from being stable and entirely unpredictable in any case. Thus, for all practical purposes we must consider infection with the tubercle bacillus as an undesirable if not dangerous experience at any time during the life cycle. It follows therefore that our objectives in the control of the disease must be directed toward the detection and isolation of cases in the community.

Tuberculosis then is a communicable disease and as such becomes a problem of the public health. Practically all communities have recognized this responsibility by the provision of hospital or sanatorium beds, as well as a system of clinic services for the early diagnosis of cases and their subsequent supervision, also the contacts to the known cases.

The development of our knowledge of tuberculosis over the years has tended to increase its significance as a specialty, and unfortunately the rank and file of physicians have not kept pace with present day diagnosis, classification and supervision of the case. This division of responsibility is further emphasized by the fact that tuberculosis is most prevalent among the unemployed and lower income groups of society. Almost invariably these members of society are unable to pay for modern diagnosis and care.

It is unfortunate that this division in responsibility has developed because there is no great reason why every private practitioner should not be actively engaged in case finding. Unless his practice is among the low income groups he is denied the abundance of tuberculosis that is to be found, and from which sound judgment can be built. This situation places a definite responsibility on the tuberculosis fraternity. They should make a greater effort to transmit this newer knowledge to all practitioners so that there may be a unified effort directed toward the control of the disease.

There are many cases under private care who can afford an ordinary medical fee but who are unable to pay standard fees for consulation and x-ray by specialists. This problem has been met in a satisfactory manner by the public agency in several communities, where consultation services have been developed without cost to the patient or the physician.

In one city the Department of Health arranged with certain practicing roentgenologists to take stereo films of such cases for a fee of five dollars. The patient paid three dollars to the roentgenologist at the time of the xray and the Department the remaining two. This plan did not function with complete satisfaction because there was no correlation of the x-ray and clinical findings. The x-ray is of vital importance in chest work but does not replace the sound judgment of the clinician. If the clinician is not experienced in these problems the patient frequently will suffer.

In New York City we have been operating for some years past consultation services for the practitioner with patients unable to pay stand-

Director, Bureau of Tuberculosis, New York City, Department of Health.

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ard fees. Our plan includes a complete work-up of the case, x-ray, fluoroscopy, sputum, etc., at the conclusion of which a complete report is given to the referring physician. This report also suggests obvious recommendations for the proper care of the patient as well as a proffer of our facilities to accomplish them. No information relative to the examination is divulged to the patient, our transaction being one of the strictest confidence with the practitioner. The importance of this service is indicated by the work done in 1937. There were 9,380 examinations in which we found 15.5% as active pulmonary tuberculosis, a third of which were minimal lesions. A more extensive report of these clinics has been published by members of our staff, Steinberg and Barnard[1] and Pessar and Edwards.[2]

It is a commonly accepted fact that the individual exposed to tuberculosis is the most likely one to be infected or diseased. This has been a fundamental of our control program since the discovery of the tubercle bacillus by Koch in 1882. This concept I understand is also a basic part of the program in this community. As obvious as this concept may be there has been a tendency among some tuberculosis workers to give a minor place in their program to contact examinations and place greater emphasis on other case finding technics that appear to be greater in magnitude—at least more dramatic in appeal.

As a rule not more than an average of 50 per cent. of contacts are examined, partly because of the difficulty in securing the cooperation of all members of the family, and further because for years the greatest emphasis has been placed on children. All experience points clearly to the adult as the greatest source of tuberculosis morbidity and mortality, and as it is usually the adults who escape examinations we are undoubtedly missing serious source cases that will continue to spread infection.

The significance of contact exposure varies directly with the seriousness of the source case. Families in which a death has occurred from tuberculous meningitis, those in which there resides a positive sputum case and those in which the diagnosed case was discovered at or close to the time of death, will produce the highest percentage of new cases. In these groups particularly it is not enough to examine only the immediate members of the family, for in many instances non-household family contacts may be the source case. The possibility of domestic servants must never be overlooked as they are frequenty the cause of infection in families.

If the source case is an apparently healed lesion, minimal in extent, or in which there is every evidence of a fibrotic process with never a positive sputum, we may expect to find little if any tuberculosis among the contacts.

A positive tuberculin in a child will of course occasionally lead to an open case; but it is rare. This fact was recently brought to our attention in a study by Downes[3] in the Mulberry Health District of New York. During 1936 there were 175 families in this district carried by the Health Center because of the presence of one or more cases of active or arrested pulmonary tuberculosis in the family or a history of a death from tuberculosis. There were grade-school-age children in 52 or 30% of the 175 known tuberculous families. In 64 or 37% of the families there were grade-school-age children who attended the public schools. In the remaining 33%, (59 families) of the 175 families where there were grade-school-age children, they attended parochial schools and were not included in this particular survey. Thus this survey reached only 70% of the families with adult pulmonary tuberculosis and if we had depended upon a positive tuberculin to lead us to these cases we would have missed 37% of the known cases as the grade-school-age child was a negative reactor.

I found[4] in a study in New Haven, Conn., in 1934 that the cost of discovering a case of significant tuberculosis on the basis of a positive tuberculin in a child was 7.5 times greater than where the source case was a known open case of pulmonary tuberculosis, and 13.6 times as costly when the source case was a death from tuberculous meningitis. The actual cost of finding a new case of pulmonary tuberculosis on the basis of the source case was: Tuberculous Meningitis $78.00; Pulmonary Tuberculosis $140.51 and Positive Tuberculin in a child $1,063.50.

Barnard[5] after carefully analyzing a series of families in New York City and Baltimore on the basis of a positive tuberculin in a pre-school child, concluded that it was a costly and ineffective method. More recent studies in one of

our clinics in New York City with similar material substantiate her conclusions.

Thus, while the contact basis of case finding is of the greatest importance, discretion must be used in the significance of the source of exposure. When the incidence of infection in the community is at a level much lower than that in most communities, then we may well consider the tracing of the source case on the basis of a positive reactor to tuberculin. It is believed that here in Peoria where your death rate from pulmonary tuberculosis has reached the exceptionally low rate of 19 per 100,000 such a step is justified.

Surveys of the apparently healthy population is a more recent development in case finding procedure. As in contact examination it is productive to the degree with which the population to be studied is selected. Bloch et al[6] have recently reported that perhaps two million apparently healthy persons have been studied. Unfortunately these surveys have lacked a uniformity in classifications that permit an accurate comparison. In addition to the failure to report a uniform classification, they fail to indicate if the lesion was of clinical significance or an apparently healed scar, and furthermore whether or not the case was previously known. All of these factors must be considered before the effectiveness of the results may be properly evaluated.

A very considerable portion of all this work has been done among grade school children because they form a group easily regimented, and furthermore there has been a prevalent idea that the detection of early manifestation in children would lead to control in later life. Both sides have substance and the latter represents more the idealistic rather than the practical approach. Work among grade school children has failed to accomplish the much larger yield in new cases to be found among the older ages. Meyers[7] has pointed out the so-called latent period in the pathogenesis of tuberculosis. In general if the child survives his fourth year in contact with tuberculosis infection in all probability he will not develop the reinfection type until he reaches puberty or early adult life.

The selection of suitable sectors of our apparently healthy population for mass surveys need not be difficult as we have ample evidence upon which to base sound procedures. If we analyze tuberculosis deaths by age groups and sex we find a sharp rise beginning at 15 years of age; in females it reaches its peak at about 25 to 30 years, whereas among males the peak is reached at about 45 years or later. Whitney[8] has shown that the occupational factor among employed males showed much higher rates among the unskilled as compared to the skilled trades. From the standpoint of economics it is common knowledge that the unemployed as a class, as well as families in the lowest income levels, are decidedly more vulnerable to tuberculosis than those better situated. As a matter of fact many of the cases found in homes of higher social levels may be traced to infection received through domestic employees drawn from the lower levels.

Race is an important factor in the incidence of the disease. There is considerably more tuberculosis among negroes, Mexicans, the yellow races and in some communities among selected whites of foreign extraction.

It is obvious therefore that in contemplating a program in any community each of these factors should be carefully weighed if we are to accomplish the most with the least expenditure of funds. The keynote should be to detect the early as well as the infectious case before there has been time for dissemination of the disease to countless others.

There are still many surveys being made among children in elementary grades and as pointed out previously they are not productive of much disease. In a group of about 9,000 examined in New York City only one case of reinfectious tuberculosis was found, and that, in a girl 14 years of age. A more likely group of the school population would be the high schools, industrial training schools, colleges, etc. These groups represent the age period in which we note a sharp rise in both males and females. As a rule about one case per thousand is found. It is believed by many that the cases discovered are only a part of the benefits derived. The educational value cannot be denied although it is difficult to evaluate in terms of dollars. It is nevertheless a form of applied education in which the student takes an active part and will therefore leave a more permanent impression on his mind than if he read about it in his text books.

The logical procedure in such work is to preselect the material with tuberculin, thereby

eliminating those not infected which results in marked savings in the later x-rays. Many of these programs are developed on a pay basis. There is no reason why those able to pay should not do so. However, if the payment of a fee is contingent to the examination, it will be found that as a rule only those financially able will subscribe, and the greater majority of those from the lower income levels will be missed. It is among that very group that we will find the greatest number with the disease. Thus if tuberculosis is a problem of the public health some provision must be made to accommodate the poorer classes. It is difficult to scale the fee according to the ability to pay without doing injustice to many. Not infrequently families on low income will strain their meager budget, whereas those able to pay will make every effort to secure their examination free or at a low cost. It would seem that here the official agency should provide the needed funds so that all children would be served. Such a survey should be so developed that at its conclusion the relative importance of this group as a whole or in part might be obtained. It must be remembered that the school population represents only a comparatively small part of the community program, and a substantial amount of the survey funds should be directed to adults.

In New York City[9] we have developed mass surveys of the apparently healthy population after careful consideration to the foregoing criteria of possible incidence of disease. We have found the method both productive and at a cost within reason. Our program has been possible because of assistance through a W.P.A. grant, and the use of the Rapid Paper x-ray method. This latter method has proved most satisfactory, as has also the use of cut sheets of paper in much of our routine work. The paper x-rays now available have reached a point of perfection that makes them reasonably comparable with celluloid and at marked monetary savings. As a matter of fact we have been able to detect the early infiltrates on paper with as much ease as on celluloid. The problem of evaluating their seriousness has been equally difficult on either medium. We have no hesitancy whatever in stating that the paper x-ray in our work has been entirely satisfactory.

Thus far we have surveyed well over 100,000 persons from various racial, economic and age groups and this experience leads to the following conclusions:

1. Over two per cent including adolescents and adults have been found with reinfection types of the disease.
2. Approximately one-half of these lesions will be of clinical importance and in need of definite supervision.
3. Approximately three-fourths will have minimal pulmonary lesions, usually in an asymptomatic stage.
4. Approximately 90 per cent of these lesions were entirely new and had not been previously diagnosed or reported.
5. The majority of all lesions were found in those 20 years or over.
6. The highest incidence of disease is to be found among the unemployed and lowest economic levels, reaching in some groups seven per cent. and in one the startling figure of 11 per cent.
7. These surveys reveal many other types of pulmonary pathology, and in adults about five per cent. have shown abnormal cardiac shadows.

From this experience I believe it is logical to conclude that the problem in other communities will, in all likelihood, follow a similar pattern.

There are many inherent dangers in mass survey work. Of first importance is the diagnosis made on the x-ray. There has without doubt been a great amount of over diagnosis of the x-ray particularly with shadows about the hilus and as frequently with parenchymal lesions. It must be realized that all increases in intrathoracic densities are not on a tuberculous basis, even though there may be a positive reaction to tuberculin. In our experience we have found it important to weigh carefully each of these lesions. Certain ones we find will clear in a comparatively short period, while others may remain stationary for a time only to show progression later on. It has required both numbers of lesions as well as hospital supervision of many to classify their significance in our minds and yet I am free to admit that many are baffling and we have no answer at all. We have had an unusual opportunity to study these early infiltrates through our routine x-raying of employees appointed to the Department of Health and the Fire Department where it is possible to re-x-ray them at

periodic intervals. The fact that these cases are on a payroll assures complete cooperation. The evidence points clearly to the absolute necessity of having a staff well trained in the detection of early lesions as well as experience in their ultimate supervision. Our experience indicates that without this approach the usual observer frequently minimizes early changes to the ultimate detriment of the patient. It is axiomatic that sound conclusions can be based only on individual appraisal, and not on generalization of the many. This is not because this knowledge cannot be absorbed by all interested clinicians and radiologists, but rather because it is still somewhat of a new venture and experience alone can give the substance from which accuracy is developed. Here in Peoria where you have accomplished so much in your sanatorium with the early case, the leadership is available and should be the hub around which all such work is developed. For if not properly handled at the outset then cases so frequently return later with advanced disease when they are a community problem.

Another problem that challenges our attention is: what shall we do with these cases once they are discovered? In the school survey work there has developed the idea that some supervision must be given the child with a positive tuberculin, or the residuum of a primary lesion. The Preventorium and Open Air Class has been the usual answer. In this field we have again accumulated a great deal of experience that can no longer be ignored. Neither institution really prevents tuberculosis in the long run, primarily because at that age seldom anything happens, and furthermore, the length of time the child may spend in either is so short that no lasting benefit is gained. It is true that the child in both will show a gain in weight; but unless we make some provision in the home to maintain that gain, as well as remove the source of infection, the ultimate value is at best doubtful. In recent years the Preventorium has definitely lost caste and several have been closed or better still have been converted to beds for the tuberculous. This change in emphasis here in Peoria has removed your waiting list so that all new cases may be promptly admitted when diagnosed. The open window class room still holds sway in many communities, but they too are on the way out. In addition to the foregoing objections to the open air class room they are further complicated by the fact that sooner or later they become the dumping ground for a wide variety of problem children many of whom are not even remotely related to a tuberculous infection.

The reinfection type of lesion manifested as an early parenchymal infiltrate demands the best possible judgment in supervision. All too frequently these lesions are not given the consideration they deserve. The patient is invariably without symptoms—certainly the cardinal symptoms so long associated with the disease. The patient and the physician as well may for this reason be inclined to ignore them and wait for some evidence of a more urgent nature before action is taken. In our experience we have seen disastrous results time and again, and when the case finally comes under observation the disease has spread to a more advanced stage with all the consequences involved.

These early lesions are manifested by small areas usually located in the upper half of the lung. Some are fairly discrete suggesting both an exudative and a productive process. Some are plaque-like shadows usually located subclavicularly, and we have seen them shell out within a few months. Others are located in the first rib circle and appear to be fairly stable, but we have seen these break down and spread. There is another group manifested only by a clouding well out toward the periphery that is frequently mistaken for soft tissues. These also have been seen to spread usually without associated symptoms, and almost invariably in all these cases there is no history of contact or exposure.

A number of recent reports from those interested in Hospital Nurses Training schools with this problem, have emphasized the importance of strict bed rest. Their results have been most encouraging in bringing these lesions to an arrest. Our experience has been parallel. It appears that adequate results in the majority can be secured without surgical interference, and it is not believed that pneumothorax should be a routine, at least not until bed rest has been given a fair trial.

Fellows[10] of the Metropolitan Life Insurance Company in New York City has developed one of the most complete tuberculosis programs in industry. In his plan all applicants for Home Office employment who formerly were routinely

examined physically, are now also fluoroscoped, and all Home Office employees are fluoroscoped annually and x-rayed when indicated. The Home Office employees with suspicious or definite tuberculous lesions are hospitalized at Mt. McGregor, the Company's sanatorium. On discharge from the sanatorium, they are placed back on the job where careful re-examinations are made as indicated.

Since 1930 they have examined approximately 14,000 Home Office employees annually, among whom 200 cases of active pulmonary tuberculosis were found; 120 or 60% were minimal, and 80 or 40% were advanced; and since 1933, 70% were detected in the minimal stage. All have been hospitalized at Mt. McGregor and about 25% have a positive sputum.

He states that "By far the larger percentage of these individuals have no physical signs upon examination, and only about half of them present suggestive or typical symptoms. The results from the standpoint of treatment are very encouraging. We have found that those who commence their cure before symptoms, signs or history indicate an active lesion, show a definitely lower percentage of recurrence."

CONCLUSIONS

Case finding is an essential part of the tuberculosis control program and it is believed that with a judicious use of our present day knowledge the disease may be completely eradicated.

The most productive source of new cases is in the examination of those exposed to known cases. Here discretion must be shown in the emphasis we place on the source case. By and large the more malignant and fulminating the primary case the greater the incidence in infection and disease among the contacts.

The apparently healthy population affords a desirable medium of case finding providing a selected group is taken. Generally speaking they will be 20 years or over, of the lowest income groups; the unemployed or the unskilled trades, the colored races invariably showing a higher percentage of disease than the whites.

The early lesion detected in mass survey work will command the best effort in diagnosis and must be carefully supervised despite the fact that these cases are usually symptomless. Experience indicates that many of these early infiltrates benefit by bed rest in the hospital, and also that a period of post sanatorium supervision is advisable.

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SULFANILAMIDE IN THE TREATMENT OF STRICTURES OF THE RECTUM CAUSED BY LYMPHOGRANULOMA VENEREUM

Preliminary Report

GEORGE SHROPSHEAR, M. D.

From the Department of Surgery, Division of Proctology, Provident Hospital

CHICAGO

Current methods of treatment of the anorectal manifestations of lymphogranuloma venereum have been most disappointing. The reported good effects of Frei antigen therapy have not been confirmed. Tartar emetic and fuadin have failed to prove efficacious as therapeutic agents. Deep x-ray therapy over the sacrum has proved ineffective. Dilatation has not given satisfactory results. Because the inflammatory process usually involves the anus and a considerable portion of the rectum, operations, such as the so-called internal proctotomy, have failed to give more than temporary relief. Even such radical measures as temporary or permanent colostomy have occasionally failed to retard the extension of the inflammatory process into the adjacent tissues of the perineum. In some patients, follow-

Sulfanilamide was furnished for this study through the courtesy of the Winthrop Chemical Company.

ing colostomy, the inflammatory process may ascend to involve and constrict the stoma of the colostomy, necessitating the establishment of an artficial anus in the transverse colon. The unsatisfactory results of these various methods of treatment seem explainable by the failure to attack directly the inflammatory process itself.

Inasmuch as the etiologic factor of lymphogranuloma venereum is as yet unknown, all methods of treatment are empirical. During the past year, numerous reports have appeared in the American literature concerning the favorable action of para-aminobenzenesulfonamide (sulfanilamide) against beta-hemolytic streptococci, meningococci, pneumococci, and gonococci. In spite of the lack of experimental evidence of the value of sulfalnilamide in the treatment of lymphogranuloma venereum, there appeared to be no contraindication to its administration empirically, to patients with this disease.

Observations have been made of the oral administration of sulfanilamide in nine patients with rectal stricture due to lymphogranuloma venereum. In each patient, the diagnosis of inflammatory rectal stricture was made by digital examination, visualization with the aid of the proctoscope, and in some instances by x-ray. All patients presented a strongly positive reaction to the Frei test and had been under observation for periods varying from one to three years prior to the administration of sulfanilamide. Most of the patients had previous treatment in other institutions before coming under my observation.

With one exception, all patients received 30 grains of sulfanilamide daily for fifteen days in three divided doses a day. One patient, because of marked dizziness and lassitude, was unable to tolerate sulfanilamide in excess of 20 grains daily, but was given the same total amount over a period of twenty-three days. No other treatment, local or general, was administered. The patients were warned against taking any other medicine, especially magnesium sulphate and other cathartics. Following this treatment a rest of seven to ten days was given, after which sulfanilamide was again resumed. It will be noted that some patients responded more rapidly than others, and the number of periods of treatment varied with the individual response.

The following case histories are given as illustrations of the therapeutic results.

Case 1. C. C., a negro woman, aged 36, began to suffer from rectal trouble in 1928. She came under my observation in 1935, suffering from a constant profuse rectal discharge, tenesmus, bleeding on defecation, and pruritus ani. Examination revealed the anus deformed by multiple, firm, fibrous tags, bathed in a purulent discharge, with extension of the inflammatory process into the perianal tissues and beginning elephantiasic edema of the distal parts of the labia majora. The obstructive contracture immediately above the anus made proctoscopic investigation impossible. X-ray examination with the barium enema disclosed the process to be confined to the anorectal region. The Frei test was positive, and injections of Frei antigen intracutaneously failed to affect the process. Dilatation, tartar emetic, and deep x-ray therapy were also tried without success. In August, 1937, sulfanilamide was prescribed. The patient received a total of 54 Gm. of sulfanilamide during two fifteen-day periods of treatment. Response was rapid with prompt relief from tenesmus, and gradual disappearance of the discharge, bleeding, and pruritus. When last seen, two months since treatment, the patient had gained 12 pounds in weight and had noted no recurrence in symptoms. Though the anal tags persisted, their inner inflamed surfaces were healed. The anus admitted the little finger without discomfort, revealing a smooth, fibrous constriction of the anorectal region. The areas of perianal involvement had healed.

Case 2. G. L., a negro woman, aged 23, began to have rectal trouble in April, 1935. When she came under my observation in May, 1935, she was found to have an anterior mid-line anal fissure, associated with proctitis and bilateral inguinal adenitis. The Frei test was strongly positive. The patient was given Frei antigen intracutaneously, which seemed to influence favorably the inguinal adenitis, but failed to influence the rectal condition. As the inflammatory process extended, the anterior wall of the anorectal region was thrown into irregular, elevated folds associated with marked proctitis and a continuous purulent discharge. Smears did not reveal gramnegative intracellular diplococci. In 1936, the patient developed an anorectal fistula. Fistulectomy and fissure excision were done. These wounds, bathed in a continuous mucopurulent discharge, healed very slowly. Meanwhile the inflammatory process in the rectum was found to have ascended to involve the last 6 cms. of the rectum with constriction most marked at about 4.5 cms. above the anus. Tartar emetic was administered without success. The patient was gradually becoming debilitated by intermittent attacks of fever, continuous rectal discharge, bleeding, and tenesmus with frequent stools of mucus and fecal material. Serology was negative, and the blood count revealed a moderately severe hypochromic anemia. In August, 1937, sulfanilamide therapy was begun. Response to therapy was gradual. Tenesmus was the first symptom to respond favorably. Later, the bleeding and discharge decreased, and finally the mucus stools gradually diminished and disappeared. There was no recurrence of fever. The patient's appetite and general condition improved, and at the conclusion of treatment she had gained 15 pounds. Proctoscopic exam-

ination revealed that the occluding ulcerating granulations of the involved bowel had been replaced by mucous membrane from the strictured area downward to the anus. A total of 108 Gm. of sulfanilamide was given orally in this case during four periods of treatment. There has been no recurrence of symptoms after six weeks without treatment.

Observation of patients with rectal stricture due to lymphogranuloma venereum reveals that in the majority of instances the destructive and disabling lesions of this disease are accompanied by evidence of infection. The obstructive contracture of the rectum gives rise to local discomfort occasioned by the discharge of a mucopurulent and bloody material associated with varying degrees of tenesmus with urgent and frequent desire for defecation, during which incomplete evacuations of mucus and fecal material occur. Manifestations of constitutional intoxication vary with the individual patient and no not appear to be directly related to the extent of the local, destructive, inflammatory process. However, most patients have symptoms of chronic sepsis with debility, slight to moderate recurring elevations of temperature, impaired nutrition, loss of weight, and hypchromic anemia. These symptoms persist as long as the inflammatory process in and about the rectum is active.

The effect of sulfanilamide on the inflammatory process in these patients was evaluated by the response of rectal symptoms, and of the patient's general condition, to the administration of the drug. In five patients the tenesmus, mucous stools, rectal discharge and bleeding completely disappeared under therapy. Two patients with rather extensive involvement of the rectum are still under treatment because of the presence of occasional mucus stools, although the other rectal symptoms have disappeared. The most striking effect of treatment was the rapid improvement in appetite accompanied by an increase in weight and strength. As indicated in the accompanying chart, all patients showed a distinct gain in weight. The response of the rectal symptoms to the administration of sulfanilamide appears to be related more or less directly to the extent of the involvement and not to the duration of the disease.

Follow-up protoscopic examinations were made in seven patients who previously presented irregular, ulcerating overgrowths of granulation tissue obstructing the bowel, with almost complete denudation of the mucosa. It was observed that, although the stricture persisted, the granulations had been replaced for the most part by mucous membrane.

Colostomy operations had previously been performed in other institutions on two patients prior to my observation. One patient, K. E., did not suffer from rectal symptoms, but complained of a constant, profuse, purulent discharge from the sinus of the left inguinal colostomy, associated with bleeding and frequent evacuations from the transverse colostomy. These symptoms rapidly improved following the administration of sulfanilamide, and the patient gained ten pounds in weight. The other patient, C. H., was debilitated and complained only of a profuse, rectovaginal, sanguino-purulent discharge, which greatly diminished under treatment and lost its bloody character. This patient rapidly gained in strength and when last seen she had gained twenty-two pounds.

The administration of sulfanilamide in small doses of 1.2 to 1.8 gm. daily, over a prolonged period in repeated courses, appears to be a satisfactory method in patients with rectal stricture due to lymphogranuloma venereum. Rapid response of symptoms and general impovement was noted in five patients, each of whom received a total of 54 gm. of sulfanilamide during two fifteen-day periods of treatment. In two patients a total of 108 gm. of sulfanilamide was administered, during four periods of treatment, before the rectal symptoms completely disappeared. Two patients remaining under treatment because of the persistence of occasional mucus stools have received 81 gm. and 108 gm. of sulfanilamide without having any cumulative toxic effects.

Minor toxic manifestations to the administration of sulfanilamide were noted in five instances, such as malaise, lassitude, headache, and dizziness. One patient complained of insomnia. The patients seemed to develop a tolerance for the drug with disappearance of the toxic symptoms as its administration was continued. Two patients complained of abdominal cramps while taking sulfanilamide but did not discontinue treatment. While all patients presented varying degrees of hypochromic anemia at the institution of treatment, there was no instance of the development of severe hemolytic anemia. It was observed, however, that the low hemoglobin level noted in these cases did not improve under treatment, although no reduction in hemoglobin

was noted. Neither drug eruptions nor elevations of temperature were noted in this series.

The encouraging results noted in patients with rectal stricture prompted the further use of this method of treatment in patients presenting the inguinal and vulval types of involvement. To date, only three male patients with inguinal adenitis due to lymphogranuloma venereum have been given sulfanilamide. It was found to favorably influence this type of involvement, but failed to cause the adenitis to completely subside. One female patient with chronic ulcers of the vulva, hypertrophic vulvitis, and chronic urethritis due to lymphogranuloma venereum has shown definite improvement on sulfanilamide therapy with prompt response of urinary symptoms and gradual healing of the ulcers. As yet there has been no change in the elephantiasic edema of the vulva.

SUMMARY OF NINE CASES OF RECTAL STRICTURE TREATED WITH SULFANILAMIDE

Frei Test Positive in All Patients

Patient Age	Sex Race	Diagnosis	Duration of Disease Years	Grams of Sulfanilamide Administered	Response of Rectal Symptoms: Tenesmus	Mucus Stools	Discharge	Bleeding	Remarks
K.E. 30	Female White	Rectal stricture; inguinal and transverse colostomies.	4	54	O	O	O	O	Pus and blood disappeared from colostomy wounds. Gained 10 pounds.
C.C. 36	Female Colored	Anorectal stricture; fibrosed anal tags.	9	54	C	C	C	C	Response rapid. No recurrence after 2 months. Gained 12 pounds.
G.L. 23	Female Colored	Rectal stricture.	2	108	C	C	C	C	Gradual response. No recurrence after 1 month. Gained 15 pounds.
M.A. 23	Female Colored	Rectal stricture; anorectal fistula.	2	54	C	C	C	C	Rapid response. No recurrence after 2 months. Fistulectomy healed. Gained 8 pounds.
M.H. 48	Female Colored	Rectal stricture; rectovaginal fistula.	14	54	C	C	C	C	Response rapid but rectovaginal fistula causes distress. Gained 6 pounds.
L.H. 30	Female Colored	Stenosis of rectum (12 cm. in length).	4	81	C	P	C	C	Under treatment. Response gradual. Gained 9 pounds.
C.H. 29	Female Colored	Rectal stricture; inguinal colostomy; rectovaginal fistula.	7	54	O	O	P	C	Rapid response. Under treatment. Rectovaginal fistula same. Gained 22 pounds.
G.G. 33	Male White	Rectal stricture; anorectal fistula.	4	108	C	C	C	C	Response gradual. Gained 10 pounds. Able to resume work.
B.B. 30	Female Colored	Rectal stricture.	5	108	C	P	C	C	Response gradual. Under treatment. Gained 10 pounds.

Key to response of rectal symptoms:
C = complete relief
P = partial relief
O = symptoms not present on institution of treatment.

SUMMARY

The results of the administration of sulfanilamide in nine cases of rectal stricture due to lymphogranuloma venereum are presented.

The general improvement of the patients and the response to sulfanilamide of the inflammatory process in and about the rectum has been encouraging, but further investigation is desirable.

Small doses of sulfanilamide administered over a prolonged period in repeated courses has proved satisfactory in this series of patients. Only minor toxic manifestations were noted, but the potential danger of severe reactions to this drug has been emphasized by others.

3458 South State Street.

THE CHANGING INDICATIONS FOR PROSTATIC SURGERY

PAUL F. OLSON, M. D.,
DUBUQUE, IOWA

The advent of the transurethral approach to the removal of prostatic obstruction was attended by enthusiasm, by skepticism and by confusion. We are now emerging from that transition and are in a position to realign our views on prostatic problems in the light of experience.

The indications for prostatic surgery are being broadened, on the one hand, to include more of the patients who, due to their debilitated general health, were formerly denied surgical relief

and, on the other hand, to include more of the younger patients whose obstructions are as yet incomplete.

The patient suffering from prostatic hypertrophy, since it is an affliction that comes with advancing years, is usually well past his prime of life as a surgical risk. That suprapubic prostatectomy was alleged to carry the highest mortality of any operation for the alleviation of a non-malignant condition was due, not so much to the rigors of the procedure, as to the age and infirmity of the patients who presented themselves for relief from urinary obstruction. In addition, surgical intervention had to be refused to a group of the more debilitated patients on account of the improbability that they could survive the operation.

There has long been need for a method of removing prostatic obstruction that could be extended to patients who were bad surgical risks. The value of the transurethral resection in this direction has been rather generally acknowledged. One is surprised at the number of people in their eighties who apply for relief from their urinary difficulties, and it has been pleasing to observe how well they tolerate their resections.

Another gratifying aspect of the operation has been the relief that now can be extended to patients who, in addition to suffering from a urinary obstruction, suffer from a cardiac disorder. A recent case has brought this forcibly to the writer's attention.

The patient, a man sixty-six years of age, was referred with complete prostatic obstruction in addition to a failing cardiac function with pulmonary edema and cyanosis. An electrocardiogram showed marked damage. The roentgenogram of the chest showed an extensive enlargement of the heart.

He was transferred to the cardiac service, the only immediate urological treatment being an indwelling catheter and urinary antiseptics. Three weeks later he had improved sufficiently to have a suprapubic catheter inserted through a trocar under local anesthesia. He continued his cardiac treatment at home, and returned at intervals; but as fluoroscopic examination of his chest still showed pulmonary edema, surgery was felt to be out of the question. On October 26 he returned, stating that his suprapubic tube had been dislodged some days previously and that he was leaking urine through the sinus, which had now become too small for the reinsertion of a catheter. It was felt that he could not tolerate a suprapubic cystotomy better than he could a transurethral resection; and while the former would be only palliative, the resection, if successful, would, so far as his urinary disability was concerned, be curative. Fluoroscopic examinations showed his lungs to be clear of fluid for the first time since his original admission. However, the slightest exertion caused dyspnea, and moderate exertion caused cyanosis. The cardiologist regarded him as a very poor surgical risk. The patient himself forced the issue by refusing to continue with a catheter, either suprapubically or urethrally, if anything better could be offered him. The risk of even a transurethral resection, to one in his condition, was explained to him; but he demanded that it be carried out if there was any possibility that he might survive. He was taken to the hospital and the next morning was given a small spinal anesthetic in the lowest accessible lumbar segment. Examination with the retrograde cystoscope showed large lateral prostatic lobes projecting into the bladder. A Thompson resectoscope was used, and the removal of thirty-two grams of tissue in a forty-five minute operation cleared away the main obstruction. It was felt to be unwise to prolong the operation in order to trim away all the remnants of tissue; and so the bleeding was stopped with the electrode, a catheter was inserted, and the patient was returned to his bed. He spent a good operative day and was permitted to be out of bed on the second postoperative day. On the third postoperative day the catheter was removed and he voided satisfactorily. A check of his residual urine that day showed ninety cubic centimeters. The fourth day he had fifty cubic centimeters of residual urine. On the sixth day he was permitted to go home. Two weeks later he returned for his final check up. He was voiding to his complete satisfaction and had no residual urine. He was, however, still dyspneic after such mild exertion as walking on the level.

This case is presented in its details in order to emphasize how far transurethral prostatectomy may be extended in the direction of offering relief to patients with cardiac insufficiency. Before the days of transurethral resection, we would have had nothing better to offer this patient than that unhappy life known as a "catheter life."

There are, of course, limits beyond which transurethral surgery may not be extended and should not be forced. An attempt to operate on every case of prostatic obstruction, regardless of the general health, will lead to some unhappy consequences. Every aged patient should have an electrocardiographic test of heart reserve, as well as the usual urine and kidney function tests, in addition to the thorough physical examination. It is also well to keep a borderline case under observation before any decision regarding surgery is made. There should be complete cooperation with the medical department in the preoperative treatment, and nothing that will increase the patient's resistance should be disregarded. A patient's condition having been in-

vestigated and, if possible, improved, the decision regarding his fitness for surgery will depend on the operator's experience. Experience has shown that we can successfully relieve prostatic obstructions in patients who could be expected to survive almost no other major surgical procedure. Certainly the proper employment of the transurethral resection is extending the indications for surgical relief of prostatic obstruction to include a large portion of the feeble or debilitated patients to whom it was formerly necessary to refuse surgical relief.

The indications for modern prostatic surgery are also being expanded in the direction of including younger patients who are suffering from incomplete obstructions.

Formerly we were not equipped to deal with prostatic obstruction in its earlier stages or in its incomplete manifestations. Suprapubic enucleation of the gland was too extensive an operation to be applicable to cases of partial obstruction and, for lack of a better method, these patients were allowed to continue until the operation was no longer avoidable. As the technique of prostatic surgery has changed, so have the indications for surgical relief: and one no longer serves the best interests of the patients by permitting them to harbor a partial obstruction to the urinary outflow, for such obstruction, though incomplete, cannot be long continued without injurious consequences to the urinary tract proximal thereto.

The advent of an obstruction to the passage of urine is met by an increased activity on the part of the bladder musculature. Symptomatically, the obstruction is evidenced by a slowness in initiating urination, by an increased straining required to void, and by a decrease in the size and force of the urinary stream. As the obstruction in the prostatic urethra increases, the wall of the bladder may do one of two things: it may hypertrophy and, for a time, keep pace with the increasing obstruction; or it may relax and become atonic.

If the bladder is unable to empty itself completely, a pool of residual urine remains after each voiding. As the obstruction slowly increases, the amount of residual urine also increases. Ultimately, the amount of residual urine may far exceed the normal content of the bladder. Some time ago a patient was referred with a history of long-standing, progressive urinary difficulty. Although he continued to void in small amounts, he was carrying about three liters of residual urine. A chronic distention of such proportion leads to an atonicity from which the bladder recovers slowly. In his case, the bladder musculature did not regain sufficient tonicity to be able to empty itself completely until the sixth week after the obstruction had been removed. By relieving the obstruction in his prostatic urethra in its earlier stages, much damage to the bladder might have been avoided.

Infection is not necessarily a sequel of prostatic obstruction, but a pool of residual urine is a fertile soil for infection; and unless the obstruction is relieved before it becomes complete, catheterization must ultimately be resorted to, and catheterization, especially if repeated, leads quite regularly to a urinary infection in such cases. If the obstruction is relieved in its incomplete stages, infection can usually, although not always, be avoided.

As has been stated, not all bladders become atonic as the result of obstruction. Some bladders hypertrophy as the obstruction increases and are able to empty themselves completely for a time by increasing the expulsive force. The hypertrophy of the musculature of the bladder is able to keep pace with the increasing obstruction only temporarily; and when the time comes that the bladder can no longer rid itself of all the urine, the hypertrophy of the bladder proves to be disadvantageous; for the wall is unable to relax sufficiently to absorb the back pressure of the urine, and one of two unfavorable consequences results; either the wall of the bladder gives way at its weakest point and causes a diverticulum of the bladder, or, if the bladder withstands the increased urinary pressure, the pressure is transmitted to the kidneys, where it can do the most harm by causing hydronephrosis, failing renal function and, if unrelieved, ultimately death.

The best preventive for damage to the remainder of the urinary tract as the result of a partial obstruction in the prostatic urethra is the removal of the obstruction. An operation aimed at the relief of an early obstruction has to meet three requirements: it must not be hazardous, it must not interfere with the patient's general health, and it must not involve a long convalescence. Previously we had no operation that met these requirements and we had no way

of dealing satisfactorily with partial prostatic obstructions. In the transurethral resection, we have a method that entails little risk, that permits patients to leave the hospital, on the average in less than a week, and that does not keep them from their work for any great length of time.

The future interests of the patients will be best served by removing the obstructing prostatic tissue before unfavorable complications have had an opportunity to develop.

One is frequently asked as to what types of prostatic hypertrophy should at present be reserved for a suprapubic rather than a transurethral prostatectomy. When transurethral surgery was in its infancy, its field of application was largely limited to the small medial lobe obstructions. Later it was expanded to include enlargements of the lateral lobes. As the scope of the operation has expanded, there have been two types of prostatic enlargements that have remained difficult for transurethral resection: one, the prostate that requires the removal of large amounts of tissue due to its extreme size; the other, the prostate that, due to its structure, requires almost a sub-total prostatectomy transurethrally in order to permit the unobstructed passage of urine.

Structurally, benign enlargements of the prostate gland differ considerably. Under the microscope one sees adenomatous and fibrous tissue in varying proportions. Surgically, the important consideration is whether the remainder of the gland is structurally firm or is soft and elastic. Often one encounters elastic adenomatous tissue in the lateral lobes, more of which presses into the channel as fast as it is removed. In such a case, it is necessary to remove a large amount of tissue and to do almost a sub-total prostatectomy transurethrally in order to provide a wide open passage for urine. Again, one encounters enlarged glands composed of tissue that is soft and structurally inadequate to maintain a channel opened through it. As tissue is removed, more is seen to collapse into the opening from higher in the lateral lobes. Here again it is necessary to remove large amounts of tissue in order to obtain a good result. It is always important in such a case to remove plenty of tissue from the anterior halves of the lateral lobes and to be on the lookout for a hypertrophied anterior lobe. I recently operated upon a patient with a complete obstruction in whom the excess tissue was almost entirely in the upper half of the left lateral lobe. Most of the operation was performed with the instrument inverted; and twenty-two grams of tissue, which is almost the equivalent of a normal gland, was removed from the anterior portion of the prostate.

The sheer size of the gland may also make it borderline for a transurethral resection. I believe, however, that the proper way to treat a prostatic obstruction that requires the removal of a large amount of tissue is not to do a suprapubic enucleation but to do a transurethral resection in two stages.

Some months ago I operated on a man who had such huge projections of the lateral prostatic lobes into the bladder that it was only with great difficulty that the instrument could be inserted deep enough to engage them. At the first stage of the operation, the intravesical enlargements were removed transurethrally, the bleeding stopped, a catheter inserted, and the patient returned to his room. He was able to be out of bed the next day. Five days later he was returned to the operating room for the second stage, at which time the intraurethral enlargements of his prostate gland were removed. He was out of bed on the first postoperative day and the catheter was removed on the second. He voided easily and had only twenty-five cubic centimeters of residual urine. The third day he had twenty cubic centimeters of residual urine, and on the fourth day he emptied his bladder completely. He left the hospital on the fifth day and has since voided to his complete satisfaction.

Transurethral prostatic resection lends itself well to division into stages. Unlike the possibility in many other surgical procedures, one may terminate the operation at will. At any time, the surgeon may insert a catheter for drainage, and return the patient to his room. Thus prolonged anesthesia and surgical shock can be avoided. By judicious employment of the two-stage prostatectomy, one can extend to patients harboring huge prostatic enlargements the relief obtained by transurethral prostatic resection and, at the same time, preserve to them all the benefits of the operation in the form of minimal risk, brief hospitalization, and early return to accustomed employment.

The purpose of this presentation is to emphasize the changing indications for surgical relief

of prostatic obstruction as the transurethral approach is perfected and expanded. Relief can now be offered to aged and infirm patients from whom it previously had to be withheld. On the other hand, we are now well equipped to remove partial and incomplete obstructions before they give rise to complications in the remainder of the urinary tract. By dividing the operation into two easy stages, a few days apart, we can remove large amounts of prostatic tissue when necessary and at the same time preserve to the patient all the benefits of the procedure in the way of minimal risk and brief convalescence.

1200 Main Street.

DERMOID CYST SIMULATING MENINGOCELE

A Case Report

EMIL JONAS, M.D., ANTHONY BAGNUOLO, M.D., and A. DICK, M.D.
St. Joseph Hospital
CHICAGO

The haphazard diagnosis of tumors of the scalp may lead the surgeon into a series of operative errors with the patient being on the losing end, but due to nature's generosity, the surgeon is saved the physical hurt but not the mental anguish of conscience. The repeated warning in the literature that exact diagnosis is not overestimated is illustrated by the following case. We are of the opinion that emphasis has been insufficient and that errors in diagnosis are still very common. Our case shows the need of differential diagnosis between meningocele and dermoid cyst of the scalp. The former involves much thought before operative procedure is outlined, and often not indicated, while the latter is more amenable to permanent cure.

Meningoceles and dermoid cysts are both congenital and noticed in the first decade of life. Both have deep seated attachments, but only meningoceles have continuity with the supracerebral fluid. The former are true herniations, but not the latter. Both may be confused and mistaken for the following: each other, angioma, lipomata, sebaceous cyst (wen, atheroma, sebocystomatosis, steatoma), fibromata, fibroma molluscum, Dercum's Disease, osteatomata, cephalhematoma, cephalocele, cephalematocele (Stromeyer's), cephalematoma (caput succedaneum), cephalhydrocele, syphilitic nodes, gummata, implantation cysts, and keratomas.

A dermoid cyst of the scalp is most often a single tumor; may be attached to any or all tissues from the cerebral dura to the deep pericranium (cranial periosteum); dissection is difficult; bone defect may be complete or incomplete; only sequestration dermoids occur on the scalp; the attachment is by a pedicle or a broad base; and is on or near an embryological line of closure.

Miss M. C., age 20. When about three or four years old her mother had her examined by a regular doctor who told the mother that her daughter had a "bump," and that it would go away. The patient became aware of the lump at the age of ten or eleven because others recalled it to her attention. Its progressive increase in size has been extremely slow. Massage had been ordered by a regular doctor to reduce the swelling but although the patient felt that it became smaller, it never disappeared. Resting head on a hard table was also tried without success. The patient was born in Ravenswood Hospital, Chicago, Illinois. The birth history is negative. The tumor was about 3 mm. in diameter at the time her mother first had her examined, In April, 1938, it measured 6x4.5x1.5 cm. It has never been painful.

Diagnosis: Clinical examination shows a swelling of the left orbito-fronto-temporal region (Figures 1 and 2). The skin is normal and freely movable over the slightly movable tumor beneath. It does not fluctuate. Slight compression is possible with digital pressure. Motion in a circular direction is slight. The mass can be seen to reach from the lateral ocular angle to just beyond the hair-line of the left temporal region. Notice furrows between junctions of normal lid and forehead skin to that stretched by the tumor.

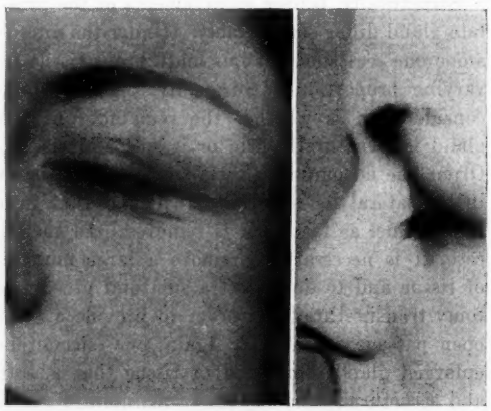

Fig. 1. (left) Tumor in sphenofrontal region, size of an orange, anterior view.
Fig. 2. (right) Tumor in sphenofrontal region, size of an orange, lateral view.

The patient consults surgical aid because of marred beauty and progressive loss of vision due to encroachment into the orbit by the tumor. She raises the upper lid with difficulty, and temporal vision is obstructed. Neurological consultant diagnosed mass a meningocele after seeing x-ray film and roentgenological report (Figure 3), and advised a large scalp flap and osteoplasty—a formidable operation in a well person. Transillumination was negative. Needle puncture was not given a thought. The mass gave no impulse on coughing nor any increase in size.

Report on Figure 3 from roentgenologist: "Stereoscopic films of the skull and postero-anterior projection of the skull show an oval defect about ⅜ inches in diameter in the temporal region just above the orbit. A fairly good sized meningocele comes through this cranial defect . . . These findings suggest that there may be some cerebral content present also."

Report on Figure 4 by another roentgenologist: "Oblique views of the fronto-lateral region of the left orbit and temporal regions show no evidence of abnormality in the skull tables." This observer interprets the above film (Figure 3) as not being an opening in the skull. He believed that on film of Figure 4 a possible deep fossa existed, and that the bone is rather thin in a region one inch in diameter just lateral and posterior and slightly above the left orbit.

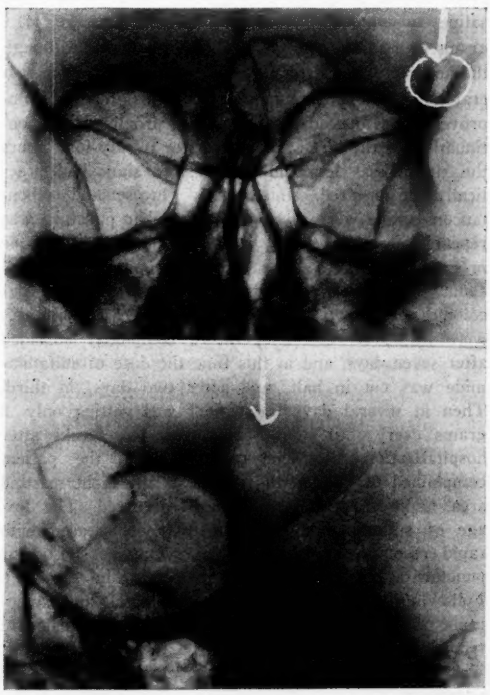

Fig. 3. (above) Stereoscopic film of the posterior anterior projection of the skull shows an oval defect 25x18x3 mm. in the left temporal region just above the orbit.

Fig. 4. (below) Oblique view of the skull shows that a rather deep fossa exists, and that the bone is rather thin in a region one inch in diameter, just lateral and posterior and slightly above the orbit.

After much mental anguish, the turmoil of thought was as follows: the base of the tumor could not be felt, so that if a bony ridge of the defect could be felt around the tumor, the diagnosis of a dermoid would be certain; the roentgenologists disagreed. Was the base of the tumor not felt because of its slight mobility? Was it a meningocele which had its neck closed at puberty and now lost its connection with the cranial cavity? What type of surgical attack?

Operation: With the greatest reverence for the handiwork of THE GREATEST SURGEON, we decided to perform a conservative incision and to enlarge it if thought necessary later. An incision was made in the line of the left eyebrow. The mass was adherent to the surrounding tissues and was freed with great difficulty especially at the base where there was definite crater-like depression measuring 25x18x4 mm. just below the inferior temporal line above the sphenofrontal suture. The tumor was attached tenaciously to bone below the periosteum, and included the thin area of the x-ray films.

Examination of tumor mass: sebaceous material was present but the odor was not as offensive as the stench of wens. The internal surface is partly smooth, and partly uneven, and varies in color from a pale grey to brown.

Microscopy: The lining of a portion of the cyst varies from a single-layered flat epithelium with hexagonal shaped cells with small nuclei to a many-layered squamous epithelium. Most of the wall is fibrous and infiltrated with scattered lymphocytes. Pathological Diagnosis: Embryonal cyst of head.

Conclusion: 1. We believe that the above cyst is a sequestration congenital dermoid of the left temporal region, probably originating in or near the left sphenofrontal suture line. 2. Emphasis is placed on the necessity to avail oneself of the various methods in making as correct a diagnosis as possible. 3. Surgery should be performed with cosmesis in mind.

We wish to express our appreciation to Dr. Julius Brams and to Dr. Roy Kegerreis for their assistance in the diagnosis of this case.

2100 Burling St.

THE NUPTIAL ERROR

The story is told of the demure bride, her face a mark of winsome innocence, who walked slowly down the church aisle clinging to the arm of her father. As she reached the platform before the altar, her dainty foot brushed a potted flower, upsetting it. She looked at the spilled dirt gravely, then raised her large, childlike eyes to the sombre countenance of the aged minister. "That's a hell of a place to put a lily," she said.

STREPTOCOCCUS MENINGITIS

Report of a Recovery Following Use of Sulfanilamide Therapy

A. R. EVELOFF, M. D.
SPRINGFIELD, ILLINOIS

With the advent of a new chemotherapeutic agent which has proven unusually efficacious in its attack on the streptococcus organisms, the prognosis of cases of streptococcus meningitis has been considerably altered. Gray[1] in 1935, in a rather complete review of the literature on streptococcus meningitis, was able to find in the period from 1901, only sixty-six cases of recovery. At St. Louis Children's Hospital[2] there had been no recovery recorded until 1937. Canfield,[3] in reviewing the 33 cases at the University of Michigan Hospital, found recovery to have taken place in but one instance. Schwentker[4] and his co-workers at Johns Hopkins Hospital state that not a single case recovered during a fifteen year period. The mortality rate has been quoted from 91.6 per cent. by Tripoli[5] to 97 per cent. by Gray.[1] In contrast to the preceding we see a considerably altered picture at this time. Relatively numerous recoveries from proven cases of strep. meningitis are being recorded. Trachsler[6] and his co-workers report four recoveries, of seven patients treated with sulfanilamide, although several of these patients also received anti-streptococcus serum. Silverthorne[7] reports five cases of recovery of nine patients treated. These and many others tend to definitely prove the value of sulfanilamide as a therapeutic agent in streptococcus meningitis.

The case reported here, aside from being the first to recover in this hospital, brings out several points of interest which heretofore have not been particularly stressed.

E. S. A five year old male, whose past history is entirely negative, was the second of four children in the family to contract scarlet fever, which occurred just one month preceding his meningeal symptoms. At that time he was rather acutely ill and had considerable fever for several days. Following this he seemed much improved and the course was uneventful until two weeks after the onset, when fever reoccurred, and without apparent complaint there was spontaneous rupture of both tympanic membranes. Again, the child was seemingly improved, drainage from the ears continued rather profusely, and it was just two weeks after the ears began to discharge that symptoms again were noted. At this time there was high fever, marked drowsiness and vomiting. The child was seen by the family doctor, who found evidence of meningeal involvement and sent the patient to the hospital.

On admission, the temperature was 104°, the child was critically ill and quite stuporous. Hearing was definitely diminished. There was considerable flaky desquamation of the extremities. No petechiae were seen. There was drainage of thick pus from both M. T., with edema, redness and tenderness to deep pressure over the right mastoid area. Examination of the fundi showed fullness of veins with slight blurring of disc margins. The nose and throat were typically post-scarlet. The heart and lungs were negative. The spleen could not be palpated. There was marked muchal and back rigidity with much pain on flexion of the neck and back. The Kernig and Babinski signs were positive, as was the Burvzinski. Tendon reflexes were markedly hyperactive. Lumbar puncture was done and a turbid fluid under increased pressure found. Jugular pressure gave no evidence of block. Direct smear showed numerous pus cells, but no organisms.

Course and Treatment: The child was immediately given 200 cc of 10 per cent glucose intravenously, and saline subcutaneously. Sulfanilamide in dosage of 2 grams every four hours by mouth was given. Although the amount of the drug was to be diminished after several doses, the apparent tolerance, plus the rapid improvement evidenced by the patient, prompted the continuation of the large amount. After twenty-four hours the stupor was less and the mastoid signs had practically disappeared. Intravenous glucose and subcutaneous saline were given daily. Lumbar puncture was repeated every other day and the spinal fluid became progressively more clear, with a diminution in cell count. The first two fluids cultured showed numerous colonies of hemolytic streptococci; thereafter cultures were negative. The temperature completely subsided after seven days, and at this time the dose of sulfanilamide was cut in half, and after two days, in third. Then in several days the patient was getting only .3 grams every four hours. However, two weeks after hospitalization, the temperature spiked, the patient complained of pain in the region of the right mastoid area, and redness and tenderness reoccurred. The dosage of sulfanilamide was immediately increased with rapid response in alleviation of symptoms. Lumbar puncture at this time revealed an increase in cell count. Following the subsiding of mastoid signs and symptoms, the child continued to show rapid evidence of recovery, and other than a left external otitis media, was ready for discharge just one month after hospital admission.

Laboratory Findings: On admission red blood count 3,000,000; hemoglobin 10 grams, (63 per cent); white blood count 17,000, with considerable shift to the left. Urine showed trace of albumin with 0 to 2 white blood cells per H.P.F., no casts, or red cells seen. Blood culture taken at time of admission was reported negative. Patient was typed for transfusion on admission; however, a compatable donor could not be found. Fifteen days after admission, red blood count was 3,400,000; hemoglobin 11 grams (69 per cent); white blood count 14,200 with still some shift to the left. X-ray of mastoids on admission as reported by Doctor DeHollander,

radiologist. Examination of the mastoid plates shows a cloudiness of the right mastoid cells. No definite fluid is present in the periantral region. Left mastoid appears normal. Impression: mastoiditis right.

Re-examination of the mastoid, two weeks later, shows a slight cloudiness of the mastoid cells of the right side but no breaking down of the bone. There is no definite change since the previous examination. These findings would indicate a congestion of the membrane of the mastoid cells.

The following table shows the results of lumbar puncture and the amount of sulfanilamide given from day to day:

Date	Cell Count	Culture	Sulfanilamide
Feb. 20, 1938	2,400	Hemolytic Strept.	2 gms. every 4 hours 2-20 to 2-27
Feb. 22, 1938	500	Hemolytic Strept.	
Feb. 24, 1938	400	Negative	
Feb. 26, 1938	165	Negative	1 gm. every 4 hours
Mar. 1, 1938	55	Negative	2-27 to 3-2
Mar. 5, 1938	110	Negative	10 gr. every 4 hours 3-2 to 3-5
			5 gr. every 4 hours 3-6
			20 gr. every 4 hours 3-8
			10 gr. every 4 hours 3-11
Mar. 12, 1938	22		
Mar. 18, 1938	8	Negative	3/12 Discontinued

COMMENT

The points of interest here, aside from the factor of recovery, pertain to the size of the dose of sulfanilamide employed and the apparent subsidence of mastoid symptoms without operative interference. Unfortunately, facilities were not available for the determination of the concentration of sulfanilamide in the blood, as demonstrated by Marshall, and it is quite possible that doses of this proportion were not necessary for clinical recovery. It has been pointed out that if a concentration of 10-15 mgm. per cent. of sulfanilamide can be maintained in the blood, the likelihood of therapeutic effects are increased. Obviously, when it is possible to have such determinations, they should be done. However, in communities where this is not possible, larger doses in properly chosen cases should be used, rather than giving an insufficient amount, and when failure occurs to regard the outcome as a failure of sulfanilamide. This patient was cyanotic, but at no time was there any dyspnea. The red blood cells and hemoglobin were not diminished, and the white blood cells apparently not influenced. Although numerous toxic effects of the drug have been described, still, in cases of streptococcus meningitis one can hardly be too greatly influenced by the possibility of reactions.

In reviewing recent reports of recoveries of streptococcus meningitis, following mastoiditis, with or without septicemia, I was unable to find an instance where mastoidectomy, unilateral or bilateral, had not been resorted to. This has been advocated as a procedure to be carried out early, even in the face of negative x-ray findings. Consequently, this case, in which definite clinical and x-ray evidence of mastoid was noted, with subsidence, although operative measures were not employed, makes one feel that the importance of early cleaning out of the mastoid is perhaps overemphasized and in some cases may not be a necessary procedure. Again, one must not overlook the possibility of a recurrence of symptoms at some time after the acute process, and even the formation of a localized meningeal process (abscess) must be kept in mind. Undoubtedly, this is entirely an individual factor and it will be interesting to note if, in other cases of this character, watchful waiting for subsidence of mastoid symptoms, rather than immediate operation, may result in recovery without subjecting the patient to the added strain of a mastoidectomy in the acute stage of his illness, or even at a later period, if further evidence of activity is absent.

SUMMARY

A report of a recovery of a case of post-scarlet mastoiditis, complicated by streptococcus meningitis.

Large doses of sulfanilamide were given, orally, over a relatively long period of time, without any apparent untoward effects.

Despite the clinical and x-ray evidence of mastoid infection, operative interference was deferred and recovery was eventually complete.

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I wish to thank Doctors W. Martini and John Deal for their ready co-operation in the management of this case.

Myers Building.

BILATERAL ASYMMETRICAL HERPES ZOSTER

(Following tryparsamide therapy)

WM. A. ROSENBERG, M. D.

CHICAGO

Medical literature mentions various arsenical compounds as possible etiologic factors in herpes zoster. Tryparsamide, however, is not cited as such an etiologic factor.

Bilateral herpes zoster is a relatively rare condition. It is, therefore, of interest to report a case of bilateral herpes zoster developing during the administration of tryparsamide to a man suffering from general paresis.

REPORT OF CASE

Mr. E. S. L., aged 66, was first examined by Dr. Meyer Solomon on December 12, 1935, who reported that the patient was mentally slow; comprehension very poor and patient was unkempt; disoriented as to time, place, and person; unable to give correctly the day, the month, and the year; did not know the name of the president of the United States, the governor of Illinois, or the mayor of Chicago in which he lived; he was unable to make the simplest arithmetical calculations and could not count beyond twelve; he could not repeat test phrases.

The history of the onset and development of his mental condition was not obtainable, since he had been living alone; but it was reported that he had been failing rapidly for at least one year. Physical findings were essentially negative; blood Wassermann and Kahn tests proved to be four plus. Spinal fluid showed globulin two plus, Wassermann four plus, Lange colloidal curve 5,555,554,321. Cultures after 24 hours were negative, and smears showed no organism.

He was sent to a private sanitarium December 20, 1935, where he remained until June 2, 1936. During this period he was twice inoculated with tertian malaria, inducing fourteen attacks of chills and fever, and being terminated by quinine.

On June 16, he was given tryparsamide therapy, beginning with one gm. and increasing to two gms. at weekly intervals; and on July 15, he developed a painful eruption on the right side of his chest, consisting of erythematous patches covered with grouped, deep-seated vesicles. Local therapy gave no relief, and on August 31 he was referred to me.

Examination then showed a typical eruption of herpes zoster on the right side over the area supplied by the seventh thoracic nerve, consisting of a marked erythema, a number of confluent and discrete vesicles, and hemorrhagic crusted lesions, extending around the trunk to a point a little beyond the mid-line, both anteriorly and posteriorly. The skin over the involved area was hyperesthetic, and the glands in the right axilla were painful. No other skin lesions were present over the rest of the body. He was given 1 cc. of posterior pituitary extract (surgical pituitrin) which was repeated on September 2, 6 and 10.

Fig. 1. Herpes zoster following tryparsamide therapy.

On September 16 he complained of a painful skin eruption over the left hip. Examination revealed lesions over the fifth lumbar and first sacral vertebrae and extending over the left hip and buttocks to the midline of the lower portion of the abdomen and groin. This eruption consisted of groups of vesicles on an erythematous base, many of which had become hemorrhagic and some of which had become ruptured.

On October 8 the patient was presented at the staff meeting of the dermatologic department at Northwestern University, which concurred in a diagnosis of bilateral herpes zoster.

SUMMARY AND CONCLUSIONS

1. Bilateral asymmetrical herpes zoster is rare, and its occurrence during the administration of tryparsamide has not been reported.

2. Pituitrin extract treatment for the control of pain in herpes zoster has been favorably reported. In this case, however, although pain was relieved, the administration of pituitrin extract did not prevent the occurrence of the bilateral eruption, that is, the lesions over the left hip.

185 N. Wabash Ave.

INTRACRANIAL BIRTH INJURY

Etiology, Diagnosis and Treatment Difficulties

ARMAND JEAN MAUZEY, B. Sc., M. D.

PHILADELPHIA, PA.

Approximately one-half of all infants either still born or dying within the first few days of life reveal at autopsy some kind of laceration of the dura mater, particularly of the tentorium. Fifty per cent. of these lacerations cause enough hemorrhage to account for death. When occurring in the full term infant, dural lacerations and subdural hemorrhages are most common. In the premature infant a subarachnoid hemorrhage of the diffuse type occurs and gross cerebral hemorrhage and subventricular hematoma are especially in evidence.

Etiology. Almost two-thirds of the mortality in intracranial hemorrhage occurs in premature infants. A fetal mortality of 20 per cent. is associated with contracted pelves, especially with occiput posterior positions and following forceps delivery. Hemorrhage of the intracranium has been shown by Banerjee to account for 80 per cent. of the mortality following breech extraction and podalic version.

When the head passes through the pelvic brim, the vertical diameter is shortened by the overlapping of the two parietal bones. Normally lengthening of the head is anterior posterior and not vertical. During occupit posterior positions, brow and breech presentations with deflexion of the head there is a vertical lengthening of the head. The vertical diameter of the after-coming head increases with its first contact with the pelvic brim. This invites injury to the intracranium and hemorrhage.

The ability of the skull bones to accommodate themselves with the least danger to the contents of the intracranium depends to a marked degree upon their maturity. The cranium of the premature infant is not as able to withstand mechanical shock during childbirth as the term infant. Mechanical shock may result from a contracted pelvis, a rigid or a resistant perineum, a hasty or prolonged labor, and a brutal or unscientific operative measure. Yet, it may appear in the process of a simple spontaneous delivery.

The presence of hemorrhagic disease in the new born plays a leading factor in the cause of intracranial hemorrhage. Its origin is unknown, but it is suspected of being a generalized systemic process. Javert feels that increased circulatory tension caused by the forces of labor may produce a separation of the capillary endothelial cells of smaller blood vessels, thereby producing the multiple hemorrhagic lesions in the various organs. Laboratory tests of the infant's blood at birth will aid in diagnosis. Irving at the Boston Lying-In Hospital states that 40 per cent of infants who show hemorrhages of the intracranium have hemorrhages elsewhere in the body. Four-fifths of all infants weighing less than 1,000 grams show evidence of intracranial hemorrhage. The connecting tissue supporting structures and the blood vessels of premature infants do not easily resist the normal forces of labor and delivery. It is difficult to class intracranial hemorrhage as being due to a natural tendency of the new-born infant to bleed or due to birth injury directly. It would seem that it may be due to a combination of the two theories.

Diagnosis. The diagnosis of intracranial hemorrhage may be difficult or impossible. The classical signs of convulsions and blood in the spinal fluid are often lacking. Symptoms of the most extensive hemorrhage may not appear until late. Then, too, symptoms which on the surface point definitely to an intracranial hemorrhage may reveal nothing on the autopsy table. There are other instances, however, where diagnosis is apparent when associated with hemorrhagic areas in the skin or the appearance of blood in the stools.

The immediate and early symptoms may resemble concussion of the brain. Nystagmus alternating with intervals when this condition is not seen is common. Rhythmic rolling of the eyes may be present. Retinal hemorrhage is not uncommon. Peculiar attacks of breathing where apnea and cyanosis interrupt normal respiration may be in evidence. Spastic or irregular convulsive seizures have definite but limited value. A number of conditions are associated with convulsions in the new born.

Febrile diseases, deficiencies of metabolism, sepsis, erythroblastosis, pyelitis and pneumonia may show signs of cerebral irritation. Tetany of the new born may be present, but the absence of laryngismus stridulus and carpopedal spasm differentiates it from the type seen in older children. Convulsions due to hypoglycemia is not

Department Obstetrics and Gynecology, Graduate School Medicine, University of Pennsylvania.

uncommon. Here one finds a blood sugar of 50 mgms. or less per 100 cc. These infants usually spring from diabetic mothers. Changes in the blood supply to the brain in the presence of a congenital heart lesion may initiate twitching.

Meningitis may resemble intracranial hemorrhage, but spinal puncture and a study of the spinal fluid will indicate the diagnosis. Cerebral edema, also known as cerebral congestion and sterile meningitis, is often indistinguishable from hemorrhage of the intracranium. It is far more frequent than ordinarily suspected. Grulee states that, "when a child recovers from symptoms due to an intracranial lesion, the nature of which has not been determined, the burden of proof rests with him who claims the condition is an intracranial hemorrhage instead of a cerebral edema." Following childbirth there is a hypersecretion of spinal fluid in the infant with edema which reaches its maximum from the third to the fifth day. Symptoms of cerebral irritation often manifest themselves at this time.

Congenital defects of the brain may cause convulsions. Agenesis or hypoplasia of the brain may be present. Hydrocephalus in many instances is not recognized by the physician. It, too, may initiate cerebral irritation. X-ray will disclose the dilated ventricles.

Spinal puncture is advocated as an aid to diagnosis. There are a number of cases on record where positive blood spinal punctures later showed no involvement of the intracranium and instances where no blood was secured in the presence of a marked intracranial hemorrhage. Spinal puncture to be of value should not immediately succeed a previous one; red cells, if present, should have undergone degeneration and exanthrochromia should be in evidence. Fresh blood in the spinal fluid is often due to trauma incident to the spinal tap.

The value of increased spinal pressure also has its limitations. The position of the baby's body at the time of puncture, the character of the infant's respiration, the presence of crying, all can so influence the amount of fluid withdrawn that its significance is greatly reduced.

The relation of cerebral birth hemorrhage to later faulty physical and mental development is vigorously debated. Any statement regarding prognosis is dependent upon whether or not intracranial hemorrhage or cerebral edema was present. Recovery from cerebral edema occurs readily, whereas hemorrhage of the intracranium inevitably leaves a damaged brain. It has been estimated that 40 per cent. of premature infants with supposedly spasmophilic convulsions in the first and second years of life will later develop cerebral defects of varying degrees. The presence of infantile convulsions per se multiplies the individual's ordinary chances for later epilepsy by at least five. Actually, however, the great majority of infants with a history of one convulsion escape epilepsy. This is no doubt true, due to the presence of a cerebral edema.

That there is a definite relationship between birth trauma and cerebral hemorrhage and epilepsy is brought out by Ehrenfest, who found that the incidence of convulsions in an epileptic group was about twice as large within the first week's postpartum, and three times as large within the first five months of life than in the corresponding ages of a non-epileptic group.

Treatment. Treatment of intracranial hemorrhage is limited. The correct management of this condition depends upon prophylaxis and prevention. Prophylaxis calls for adequate prenatal and intrapartum care of the childbearing woman and fetus. Any condition in the mother which foretells a difficult, long or impossible labor must be studied and remedied. Cephalpelvic disproportion, contracted pelvis, obstructive anomalies, debilitating diseases, toxemias of pregnancy, placenta previa, etc., are included in this group, and call for adequate supervision. Every effort to prohibit the induction of premature delivery and premature birth should be instituted. Excessive compression of the fetal head during the second stage is strongly condoned. When operative means are attempted, intracranial hemorrhage is less likely to occur if care and scientific intelligence are present. The man behind the extraction often turns a difficult situation into success.

A common cause of intracranial hemorrhage is the attempt to effect delivery through an undilated cervix. Low forceps when properly applied are definitely indicated in conditions where the head is on the perineum, but will not advance further. Irving wisely warns that the second stage of labor should not be made an endurance contest between the pelvic floor of the mother and the cerebral circulation of the infant.

Rupture of the membranes has often been

an indication for the institution of premature labor through fear of infection. Studdiford at the Bellevue Hospital reported that for three years this condition has been treated by keeping the patient in bed. If the cervix is soft and elastic, the patient usually goes into labor in 24 hours. If the cervix is long and rigid, she may go for days or weeks before labor begins. There is little danger, he feels, in using this conservative treatment so long as infection is not carried in from below by vaginal or rectal examinations.

During the second stage of labor the forces of expulsion should be shortened and lessened to decrease the possibility of injury to the intracranium. This may be accomplished by anesthesia and episiotomy for the mother and by the correct application of low forceps. Pressure on the after coming head during breech extraction to reduce vertical elevation of the cranium and encourage flexion should not be done too vigorously. This may cause herniation of the medulla through the foramen magnum with resulting death. Voluntary efforts of the mother to expel the fetus in the presence of resistant soft parts is not advised. Restraint to the infant's head to prohibit a precipitate delivery may also cause intracranial hemorrhage.

Impending asphyxia of the fetus must be recognized and steps taken to avoid a fatal result. Continued irregularity of the fetal heart rate, a rate above 160 or below 100, is suggestive of a gaseous exchange with the mother. Asphyxia may result from prolonged and unprogressive second stage of labor.

Active treatment of intracranial birth injury is unsatisfactory. When hemorrhage of the intracranium has actually occurred, the brain in most instances is beyond therapy. However, many clinicians feel that spinal puncture as a diagnostic and therapeutic agent has value. When properly done, in correlation with other signs, it may throw light upon an otherwise baffling condition.

Puncture of the cisterna magna has been advocated to aid in diagnosis and relieve pressure. Operative procedures upon the cranium have been attempted with limited results. Injection of whole blood from either the mother or father, 15-20 cc. two or three times daily into the infant's thigh, buttocks or back muscles is perhaps our most effective form of therapy. It is of particular value in the presence of lowered coagulability of the blood or hemorrhagic disease. Sedation and rest of the bleeding organs are desired. In the presence of anemia or when the intramuscular blood has failed, transfusion is indicated. Whole blood may be used following a long or difficult labor of a premature or term child, as a prophylactic measure. Gelatine has been used to control gastro-intestinal bleeding with indifferent success.

CONCLUSIONS

1. Intracranial birth injury occurs during protracted, spontaneous or operative delivery.
2. Hemorrhagic disease of the new born plays a contributing part.
3. Prematurity of the infant accounts for two-thirds of all cases of intracranial injury.
4. Many so-called intracranial hemorrhages may be conditions of cerebral edema.
5. When cerebral hemorrhage occurs it leaves a damaged brain.
6. Treatment has its greatest value in prophylaxis, by preventing premature birth, by liberal use of episiotomy and low forceps, by avoidance of unscientific operative procedures, and by careful attention to conditions in the mother which predispose to dystocia.

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1703 Spruce Street.

HOPE SPRINGS ETERNAL

The minister had just finished conducting the funeral services of a good woman, and was consoling the bereaved husband.

"You have lost your wife," the pastor said, "but there is one who loves you and will watch over you until your sorrow is but a sweet memory."

"Do I know her?" asked the widower, as he dried his tears.

CIRCUMSCRIBED PERFORATIVE OSTEOMYELITIS OF THE FRONTAL SINUS

J. Allan Weiss, M. D.
CHICAGO

Osteomyelitis of the bones of the cranium may well be termed a dire disease. It is of ever present interest because of its too frequent occurrence, the severity of the complications and the regrettably high mortality rate. The problem of management is often perplexing and may require a judicious choice between patient, efficient conservatism in some cases and early, extensive surgical procedures in other instances.

The diagnostic, pathologic and therapeutic aspects of osteomyelitis have been elucidated in authoritative articles by McKenzie,[1] Furstenberg,[2] Wilensky,[3] Mosher and Judd[4] and others. Behrens[5] recently has presented a comprehensive review of the subject.

In osteomyelitis following disease of the paranasal sinuses, the frontal sinuses are the most frequent origin of the infection. Bulson's[6] collected statistics are instructive. In 26 cases of spontaneous osteomyelitis of the frontal bone complicating acute or chronic frontal sinusitis there were 14 deaths and 12 recoveries following various procedures. The mortality rate was 53.8%. In 29 cases of osteomyelitis following surgical treatment for frontal sinusitis there were 23 deaths and six recoveries. The mortality rate was 79.3%. Although the death rate was high in both groups, the prognosis was definitely better in the spontaneous cases than in the postoperative group. Further, in osteomyelitis following acute frontal sinusitis the mortality rate was 59.7% compared to 75% in cases occurring after chronic infections of the sinus.

To a great extent the end-result seems to depend also on the etiologic organism and the location and character of the bone involvement. Some cases are more amenable to management. The following report illustrates a more fortunate outcome and some features of the treatment.

HISTORY OF CASE

C. S., aged 28, a sales executive, had been ill with an attack of grip of one week's duration. When first seen on January 21, 1937, his complaint was of malaise, pain in the right ear, and profuse, thick, greenish nasal discharge. Severe headache was present including pain in the upper teeth on each side. On examination there was found slight injection of the right tympanic membrane. The tonsils were moderate in size and not acutely inflamed. The pharynx was injected. The nasal septum was deflected to the left. Considerable mucopurulent secretion was present in the inferior and middle meati on both sides. The turbinates were turgescent. The temperature was 100.2 degrees F. Nasal shrinkage followed by mild suction yielded a good deal of pus.

The management instituted consisted of rest in bed, a nutritious diet, adequate fluid intake, sedatives, and a vaso-constricting solution for nasal instillation.

Three days later swelling and redness of the left upper eyelid occurred. The patient was hospitalized to permit energetic treatment. Roentgenograms revealed extremely well-pneumatized sinuses, the frontals extending to the lateral margins of the orbits. The supraorbital ridges were prominent and contained well developed orbito-ethmoid cells. With the exception of the sphenoids, all of the sinuses were uniformly clouded. The diagnosis was bilateral pansinusitis. Nasal shrinkage and suction twice daily evacuated considerable pus. The middle turbinates on each side were infracted to facilitate drainage from the upper sinuses. Infra-red light therapy was started, giving 15 minutes exposure four times daily. Post-nasal displacement instillation of 0.5 per cent ephedrine in normal saline was done twice daily. On the 26th the antra were irrigated by puncture through the inferior meatus with return of a large amount of pus. Thereafter washings were done every other day.

Despite all efforts the orbital swelling continued to increase, becoming fluctuant on the 31st. The temperature was 101 degrees F., and the white blood count 9,600. Over the lateral third of the supraorbital ridge tenderness and crepitus were present, indicating spontaneous perforation of the anterior wall of the frontal sinus or one of the supraorbital ethmoid cells. A 3.5 cm. incision was made along the orbital rim, evacuating about 15 c.c. of pus. Roughened bone could be palpated by probing. Further exposure to locate a fistula was deemed inadvisable at the time of the acute infection.

Subsequent improvement was rapid and the patient left the hospital on February 5th. It was the intention to build up the general resistance and eliminate the infection from the other sinuses before eradicating the area of circumscribed osteomyelitis around the perforation and the residual involvement of the left frontal and ethmoid sinuses. Unfortunately, on February 22, there occurred an acute follicular tonsillitis, followed by erysipelas beginning at the lid incision. On hospitalization the patient's temperature was 102.8 degrees F., the white blood count 11,600, the red blood count 4,850,000, and the hemoglobin percentage 80. 100 c.c. of pooled convalescent scarlet fever serum was given intravenously on the 22nd and 40 c.c. on the 26th. Ultraviolet light therapy was employed in exposures of 5, 7, 10 and 12 minutes on successive days. The erysipelas subsequently extended entirely around the face and part way down the neck, finally subsiding by March 2nd. For several days thereafter the general condition was good. There was no severe prostration. The temperature was low and headache slight. The ocular

fundi were normal. There were no signs of meningeal invasion. The continued puffiness of the forehead was thought to be resolving swelling of the erysipelas.

On March 8th headaches returned accompanied by an area of edema about 3 cm. in diameter over the glabella. The temperature was 103 degrees F. Culture of the blood was negative. A suspicion was entertained of extension of the localized osteomyelitis to the frontal bone beyond the sinus area. Sinus x-rays showed persisting cloudiness of the left frontal sinus, a break in the supraorbital line and indistinctness of the sinus floor. The frontal bone was not altered. The antra were clear. Operation was advised but the patient's family demurred as the temperature again dropped to normal. On March 10th there was a recurrence of a chill and a temperature rise to 104.2 degrees F. The white blood count was 16,000, with 94% polymorphonuclear leucocytes and a shift to the left of the Schilling index. Culture of the blood was positive for Streptococcus hemolyticus.

Operation under ether anesthesia was performed the next day. The head was shaved and prepared for possible extensive resection of the frontal bone. An incision was made beginning 0.5 cm. medial to the inner canthus, curving upward and laterally along the supraorbital margin toward the external angular process to join the former incision. At the medial end a vertical extension was made upward for 4 cm. over the glabella. Hemostasis was obtained by ligating vessels and by the use of epinephrine packs. The periorbita was separated from the orbital wall and the eye displaced downward and laterally. The periosteum was dissected away from the anterior wall of the frontal sinus revealing a fistula about 8 mm. in diameter located in the lateral third of the supraorbital margin. Pus-covered granulation tissue projected through the opening. The fistula was enlarged and the frontal sinus entered. Considerable pus was evacuated and the hyperplastic mucosa carefully removed by stripping, avoiding the use of curettes. The necrotic anterior sinus wall was removed to within 0.5 cm. of the junction with the posterior wall. The latter was intact. Necrotic bone in the floor of the sinus was removed for a distance of 2 cm. posteriorly toward the apex of the orbit until normal bone was found. The lacrimal bone and a portion of the lamina papyracea were then removed, allowing access into the ethmoidal labyrinth. The anterior ethmoid cells were exenterated until the nasofrontal duct permitted passage of a number six Ritter dilator. The interfrontal septum was broken through. There was no active disease in the right frontal sinus. Careful inspection of the remainder of the frontal bone revealed no gross changes. The sinus cavity was packed with iodoform gauze. Only the medial third of the incision, including the vertical extension, was sutured.

A spinal puncture was done after the completion of the operation. The fluid was clear and the pressure was decreased. Examination showed 15 lymphocytes per cu. mm. Smear, culture and globulin tests were negative. Culture of the pus from the necrotic bone revealed hemolytic staphylococci and streptococci.

The postoperative reaction was less severe than might have been anticipated. On the second day the temperature reached 104 degrees F., accompanied by a brief chill. Twenty-four hours later it declined to normal and remained so thereafter. A total of 100 c.c. of convalescent serum was given intravenously in three doses. The dressings in the open sinus cavity were kept saturated with a lysed bacterial antigen filtrate previously prepared from the hemolytic streptococcus obtained in the positive blood culture. The general condition rapidly improved and the patient was discharged from the hospital on March 25. The frontal cavity was dry and the nose entirely free from suppuration.

On April 16th the incision was closed by mobilizing and suturing the edges. The anterior third of the middle turbinate was removed. The naso-frontal duct was still patent. Despite rapid granulation tissue formation the sinus cavity was only partially obliterated because of its great depth. The deformity of the forehead was moderately noticeable, due in part to the prominence of the right supraorbital ridge.

On October, 1937, there was a recurrence of the suppurative sinusitis, which responded to management in a week with no troublesome involvement of the sinuses previously operated upon. The external deformity at this time was about one-third shallower than its former depth. Diplopia was still present. This was expected in view of the extensive removal of bone.

COMMENT

The necrosis in this instance was limited to the compact bone of the anterior wall and the floor of the frontal sinus. The absence of involvement of the diploic portion of the frontal bone accounted for the failure of widespread progression of the lesion with more severe consequences. In view of the slow spread of the process and the good general condition of the patient, conservative management, with maintenance of free drainage both intranasally and through the lid incision, seemed indicated until the subsidence of the acute infection and the termination of the erysipelas.

The symptomatology of simple perforation of the floor of the frontal sinus includes pain, proptosis and orbital abscess, while an anterior wall lesion is indicated by edema over the glabella, possible subcutaneous abscess, and x-ray evidence of loss of continuity of the bone.

There is a discrepancy between finding a hemolytic streptococcus in the blood and that organism plus a hemolytic staphylococcus in the culture from the necrotic bone at the operation. It is possible that the blood-stream invasion may have been due to the erysipelas.

The ultimate cure in this case was accomplished by the complete removal of all of the

necrotic bone in the anterior wall and floor of the frontal sinus. The convalescent serum administered was probably of value in combating the sepsis, even though its effect in controlling the spread of the erysipelas was less apparent. The autogenous antivirus seemed to have a definite beneficial action. This specific procedure is favored by Furstenberg and by Williams and Heilman.[7] The latter have described the technic of its preparation.

Wilensky[3] classifies osteomyelitis of the cranium on the basis of the extent of the lesion and the rapidity of the spread, as follows:

1. Perforating lesion, due to pressure of pus within a sinus with absent or insufficient drainage from the normal ducts. This may be termed osteitis.

2. Localized lesion, slowly progressive over months or years with eventual sequestration and healing.

3. Spreading lesion, rapidly involving the whole skull and going on to severe or fatal intracranial complications.

Individual variations in severity occur in these lesions. A clinical evaluation of the type and potential activity of the process must be made by all possible diagnostic means to determine the proper course to pursue. That spreading osteomyelitis requires early complete removal of bone well beyond the extent of the lesion, definitely has been established. However, a plea for conservatism in certain types of less active infections is advocated by some writers. (Dixon,[8] Blair and Brown[9].)

Behrens indicates that the conservative attitude is contingent on the presence of a low-grade osteomyelitis with a tendency to become circumscribed, on the low virulence of the infecting organism and on a good body defense-mechanism. He further summarizes that "the conservative method consists essentially of draining abscesses as necessary, of operating only when it appears clearly indicated, that is, if possible waiting until acute infection has subsided somewhat, and then being content with removal of sequestra and most of the infected bone, of not stripping the periosteum more than necessary, of searching for extra-dural abscesses, of not curetting and not incising the dura until one is sure that there is an abscess of the brain which has become well localized." Other supportive measures employed in conjunction with this method include blood transfusions, especially from immune donors, tonics, hematinics, vaccines, antitoxins, nutritious diet, heliotherapy and general hygiene.

Williams and Heilman state that in a localizing type of osteomyelitis the infective process may be completely isolated by reactive barriers with eventual marginal sclerosis of bone. In that event they await later separation of the diseased bone and simply remove the sequestrum. They recognize that failure of localization of the infection, after sufficient time has elapsed, makes imperative the radical excision of diseased bone.

Perforative lesions of the wall of the frontal sinus, limited to compact bone, cause a circumscribed necrosis which usually spreads slowly with little tendency to involve diploic bone. This affords a degree of assurance in delaying operation until optimum conditions are present.

SUMMARY

A case is presented of bilateral pansinusitis followed by circumscribed osteomyelitis of the anterior wall and floor of the left frontal sinus due to spontaneous perforation. The course of the disease was complicated by orbital abscess, erysipelas and Streptococcus hemolyticus septicemia.

Recovery followed drainage of the orbital abscess with subsequent removal of the necrotic floor and anterior wall of the sinus.

Intravenous administration of pooled convalescent scarlet fever serum and local application of an autogenous antivirus were employed as adjuvant therapy.

Conservative measures may be adopted in the management of localized perforative osteomyelitis until subsidence of the acute infection, improvement of the general condition and increased resistance afford a more favorable stage for operation.

25 East Washington Street.

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ACUTE APPENDICITIS: ANALYSIS OF THE RECORDS OF 300 CASES

E. LEE STROHL, M. D.
CHICAGO

At times, much to the chagrin of surgeons, the hazard of acute appendicitis is commonly minimized even when the condition is clear cut. Although there have been rapid strides in surgery during the past thirty years, one occasionally should take stock of present results.

I have analyzed the records of 300 cases of acute appendicitis encountered at St. Luke's Hospital between 1932 and 1937. In this paper the term "acute appendicitis" denotes that the appendix was found to be acutely inflamed at operation and was so reported by the pathologist. Thus, cases in which the appendicitis was subacute, chronic from infectious cause, or chronic from mechanical cause were eliminated from the series.

The youngest patient was aged five years, the oldest was eighty-seven years, and the average age was 26.6 years. The majority of patients were in the third decade of life (table 1). Represented in the second, third, and fourth decades were 243 patients, or 81%. Of the 300 patients, 146 (48%) were males and 154 (52%) were females. There was no appreciable difference in the average age of patients of the two sexes.

All of the patients in this series were residents of the Chicago area, and probably were representative of the patients seen in Chicago hospitals. The interval from the onset of symptoms until operation varied widely. The shortest interval was five hours and the longest was 120 hours. The average duration of symptoms before operation was 33 hours. This interval seems rather long in view of the hospital and transportation facilities of a metropolitan community.

Emergency leukocyte counts were performed in all cases, and in some cases counts were made repeatedly. I have taken for study the leukocyte count made immediately preceding operation. The lowest number of leukocytes per cubic millimeter of blood was 6,400. The patient in this case was a woman 33 years of age, who had had symptoms for 18 hours. At operation an acutely ulcerated appendix was encountered, local peritonitis, fibrinous exudate over the appendix, and a small amount of free fluid. The highest leukocyte count was 38,700. This patient was a girl of ten years of age, who had had symptoms for 96 hours. Operation on this patient revealed an acutely ulcerated appendix with localized peritonitis and a small amount of cloudy fluid. The average leukocyte count for the series was 15,875.

Two hundred ninety-one patients survived operation. Data on the incision employed, the days in the hospital, and the use of drainage in these 291 cases are given in table 2. The period of postoperative hospitalization in these cases ranged from four to 36 days, with an average stay in the hospital of eleven days. Drainage was instituted in 41 of the entire 300 cases. Drains were removed from four to sixteen days after operation. The average duration of drainage was 8.2 days.

Local peritonitis was considered to be present if there was plastic exudate or abdominal fluid localized in the region of the appendix. This condition was found in 131 (43.6%) of the 300 cases. In many instances the omentum was tightly bound down about the ileocecal region. This condition was not considered to be evidence of local peritonitis unless fluid was encountered in freeing the omentum from about the appendix.

Of the 300 patients, sixteen (5.3%) had generalized peritonitis at the time of operation. The duration of symptoms before operation in this group ranged from eighteen to 96 hours, with and average duration of 42 hours. In all of these cases the appendix was removed.

The appendix was ruptured in 27 of the 300 cases. Drainage was carried out in 25 of these 27 cases. In the two cases in which drainage was not done, one patient died on the fifth postoperative day from generalized peritonitis and paralytic ileus. The wound of the patient who survived was extensively infected but healing was complete in thirty-two days.

Nine of the 300 patients (3%) took one or more laxatives after the onset of symptoms. Of these nine patients, three died.

The symptoms of the nine patients who died varied. The average duration of symptoms of these patients was 51 hours. In no instance was

From Surgery Service "A" of St. Luke's Hospital.
Read before the Surgical Staff of St. Luke's Hospital.

the duration of symptoms before operation less than twenty-four hours. The patient whose symptoms had been present for only twenty-four hours before operation was a youth of eighteen years whose leukocyte count was 15,100. Generalized peritonitis was present at the time of operation. The appendix was removed, the stump was not inverted, and the abdomen was closed without drainage. Death occurred on the fifth postoperative day from generalized peritonitis and paralytic ileus. The longest duration of symptoms in the nine cases in which death occurred was 120 hours. The patient was a woman thirty-seven years of age, whose leukocytes numbered 8,100. Generalized peritonitis was present at the time of operation and the stump was not inverted. Three Penrose drains were inserted, two through the appendectomy wound and one through a stab wound in the right flank. Death occurred on the sixth postoperative day. This patient was one of the group who took two laxatives after the onset of symptoms. In one case, an infected wound was resutured on the twentieth postoperative day and the patient died from pulmonary embolism six days thereafter.

The postoperative length of life of the nine patients who died varied from four to thirty days. In eight of these nine cases drainage was carried out; in one instance the abdomen was closed tightly. Free fluid was encountered in each of the nine cases and generalized peritonitis was present in six. The McArthur incision was used in five of the nine cases and the right rectus incision in four. Except in the one case in which pulmonary embolism occurred, the cause of death was generalized peritonitis.

Three of the 300 patients were pregnant. In these cases the duration of pregnancy was eight, seven, and four months respectively. All of these three patients subsequently were delivered of babies at full term. This is a tribute to the surgeon in each instance. In one case, parturition occurred seven weeks after appendectomy.

DISCUSSION

Dr. Selim W. McArthur, Chicago: This paper, reviewing 300 consecutive cases of acute appendicitis, all done at the same hospital under similar conditions, in which the pathology has been established by one pathologist, presents some very interesting points.

The factors involved in the mortality of acute appendicitis such as 1. the injudicious giving of cathartics during the onset of the disease; and 2. delay in operative interference have been so thoroughly discussed and their importance so well established during the past five years, that it is not necessary to make further comment here.

The factor of the type of incision used is of great interest. The muscle-splitting or gridiron incision has been used routinely on the McArthur surgical service at St. Luke's Hospital in many thousands of cases since 1894, and there is no question in the minds of all the men connected with this service that it presents a great advantage over either the right rectus or mid-line approach. First, in the vast majority of cases, it is not necessary to handle or even see the small intestine, nor injure large peritoneal surfaces by manipulation and packing off with gauze pads. Second, where drainage is necessary, the drains usually do not come in contact with the small bowel if properly placed and used. Third, postoperative hernia is almost a physical impossibility. Fourth, this incision makes for greatly diminished time in closure and greatly diminishes the amount of foreign body catgut necessary to be buried. Fifth, and as so definitely shown by this unbiased review, it diminishes the postoperative hospital days and hours of confinement to bed.

There can be no doubt that if a patient with a right rectus incision is permitted to be up and about before the tenth to the twelfth day there will be a high incidence of postoperative herniae, and further, these patients must be cautioned against exercise for at least sixty days. On the other hand, a properly done muscle-split incision under average circumstances should enable the patient to be up on the third or fourth day, to go home on the eighth and ride horseback by the tenth to twelfth day so far as danger of herniation is concerned.

Sixth, in a large series of cases, it will surely be shown that there is a very definitely lower mortality rate where a muscle-splitting incision is used as compared with a right rectus or a mid-line incision.

The muscle-splitting or gridiron incision, known the world over as the McBurney incision and graciously alluded to here by the writer as the McArthur incision, perhaps should be designated more properly as the McBurney-McArthur incision, because whereas it was discovered and utilized by these two men independently in 1894, McBurney's description of the procedure antedated that of McArthur by several months in the literature. McBurney at the time had used it for a few months only, and advocated it exclusively for interval appendices, while McArthur had used it in more than sixty cases over a period of three years prior to reporting it and advocated its use in all fulminating types of appendicitis. McBurney in writing, acknowledged L. L. McArthur's priority in the use of this incision.

Finally, in the discussion of these 300 cases there are other factors involved whose influence cannot be fully analyzed from such a small amount of accurate data. This alludes to the type and management of drainage materials which is of great importance, the type and technique of operative procedure which can never be properly evaluated in surgical statistics, and lastly, the postoperative management which in serious cases is of equal importance with the operation.

Such summation of work done in a large hospital as the writer has accomplished here is of great value to all concerned and is to be greatly encouraged always.

Dr. Harold E. Jones, Chicago: In reviewing this group of 300 cases of acute appendicitis, pathologically confirmed, the fact which stands out most prominently and the one in which we are all most interested, is the mortality rate of three per cent. This figure, in itself, compares very favorably with reports from other hospitals in other sections of the country, but it should and can be definitely lowered by means of early diagnosis and early operative treatment. In fact, these statistics show very clearly that the average duration of the disease was fifty-one hours in those cases which proved fatal. This long delay in the recognition of the condition and the operative treatment should be eliminated in great part by constantly keeping the subject before the profession. Reports of this type are of great value, not only in relation to our own work, but in stimulating others to improve their ultimate results.

Many other factors, such as the type of anesthesia, type of incision, institution of drainage, postoperative care, and the character and treatment of complications, undoubtedly affect the mortality rate in the individual case. Statistics taken from the work of many surgeons without definite controls as to the above mentioned procedures are very difficult to evaluate.

Just a word as to the use of drainage in cases of ruptured appendicitis. In this series of three hundred cases, twenty-seven were encountered in which the appendix was ruptured. Only two of these were not drained, one died on the fifth postoperative day of generalized peritonitis and paralytic ileus, and the other had an extensively infected wound which required thirty-two hospital days. A shocking mortality of fifty per cent and nearly twice the number of hospital days for the patient who survived, as compared with an average of 17.3 hospital days for all the other cases in which the drainage was instituted, is not to be overlooked. Our own experience leads us to continue the use of drainage in these cases and to condemn the present tendency to practice primary closure.

I am sure that this review has been most enlightening to all of us and I hope that in the future it may be continued and extended to cover other surgical conditions.

122 South Michigan Avenue.

TABLE 1

Patients, age and mortality

	Patients		Deaths	
Decade of life	Number	Per cent of total	Number	Per cent of patients in respective decade
0-10	20	6.6	0	0
10-20	84	28	1	1.2
20-30	108	36	2	1.8
30-40	51	17	2	3.9
40-50	22	7.3	2	9.1
50-60	14	4.6	2	14.2
More than 60	1 (87 Yrs.)	.003	0	0
Total	300	100	9	3

TABLE 2

Incision employed, days in hospital and use of drainage in the 291 cases in which the patients survived

	Drainage instituted		Drainage not instituted	
Incision	Patients	Days in hospital	Patients	Days in hospital
McArthur	20	14.9	154	8.0
Right rectus	13	19.8	104	12.6
Total	33		258	
Average		17.3		10.3

DERMOID CYST OF THE CALVARIA

WILLIAM ALLYN GEER, M. D.

CHICAGO

Dermoid cysts of the calvaria are rare. Of 103 cases of dermoid cyst of the head and neck seen at the Mayo Clinic,[1] there were two of the occipital bone, one of the frontal portion of the cranium, none of the parietal bone. Reported in the literature there are one case of dermoid cyst of the right parietal bone,[2] one of the left parietal bone,[3] and three of the anterior fontanel.[4, 5, 6]

Of the three cases of dermoid cyst of the anterior fontanel, two are said to have appeared in childhood following a blow on the head.[5, 6] These tumors, in the opinion of the authors, had their origin as traumatic inclusion cysts. The cyst seen by Heurtaux was congenital. This tumor was the largest of the three. When the patient came for treatment, at the age of 30, the cyst was 10 cm. in diameter. In all three cases the tumors were dissected out, and wound healing followed. The cysts were adherent to underlying craters in the skull. The patient reported by Malykhova complained of headache and petit mal before operation. These symptoms disappeared after removal of the tumor. The other two cases had no symptoms referable to the cyst.

Our case is that of a Jewish girl 13 years of age who complained of a swelling on top of the head. The tumor was present at birth, and had not increased in size recently. There was no pain associated with the lesion. Examination showed a well-developed girl of the stated age with a fluctuant swelling about 3 x 4 x 1 cm. beneath the scalp in the region of the bregma. A lateral x-ray of the skull showed a superficial, shallow crater in the bone just posterior to the junction of the coronal and sagittal sutures. Under local anesthesia the tumor was dissected out. The wall of the cyst was tough and densely adherent to an underlying shallow crater in the bone. The wound healed by first intention. The

From the Department of Surgery, The University of Chicago.

interior of the cyst was filled with numerous strands of hair and a yellow greasy substance.

950 East 59 Street.

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THE USE OF RABIES VACCINE IN THE TREATMENT OF EPILEPSY

IRVING S. SCHIPPER, M. D.

GALESBURG, ILLINOIS

Probably one of the hardest entities that one has to deal with in the practice of medicine is the epileptic patient. Physically in good health, they will go from physician to absolute quackery in the search for a "cure" for their affliction.

A great many treatments have been evolved in the attempts at solving this problem. To date however, these patients still continue their never-ending search for relief.

About a year ago I had a discussion with a Southern colleague[1] who at that time informed me of a rather interesting case he had reported in which he had treated an epileptic patient with a course of antirabic vaccine and that the patient had been free from any attack for a full year when the article was reported. He stated that the patient, following treatment, had an entirely different appearance and was able to work.

Recently I found myself facing the problem of dealing with young epileptics in a State institution and remembering this case down South I went further into the literature and found the article by M. Nikolic[2] in which the author reported a case of a chronic epileptic, who after having been bitten by a dog, was given rabies vaccine. The author then noted that following the vaccine therapy, the patient had no further attacks. He immediately concluded that the resultant "cure" was due to the endotoxin of the fixed virus in the vaccine.

A little later in the literature I ran across the article by M. Tyndel and M. Pasternak[3] in which the authors tried the vaccine on ten patients with genuine epilepsy. These patients ranged from the age of twenty-one to forty-three. They inoculated rabbits with an emulsion of the fixed virus and killed the rabbits after seven days. They then prepared an extract of the brains and spinal cords. The patients were given 8 cc. subcutaneously daily for sixteen doses. They report the treatment was well tolerated but that it had no effect on the epilepsy. In view of these failures, the authors rejected this treatment.

A number of procedures, essentially non-specific in character have been tried in the treatment of epilepsy beginning with the use of serum injections by Ceni[4] in 1905; brain extract by Leon[5] in 1910; cerebrospinal fluid by Gordon in 1914 and immune rabbit serum by Held.[6]

Other authors[7] have tried various types of non-specific therapy using milk, milk and luminal, and intravenous peptone. Results have varied.

I therefore decided to try the use of rabies vaccine on my patients. With the aid of the biological division of the Eli Lilly and Company, I obtained eight packages of outdated rabies vaccine. I then chose four young women and four young men in whom I judged there was the least amount of mental deterioration. All eight had been receiving various amounts of luminal and all eight would have epileptic attacks despite the luminal.

My first step was to discontinue luminal for at least twenty four hours and observe the reactions of the patients. Each suffered greatly. In one case, the patient had such severe attacks every fifteen minutes that I deemed it urgent to return her to her luminal after a few hours of observation. Having definitely established the fact that these patients would all suffer greatly without the luminal, I returned them to what we had previously established as their maintenance dose and began giving each a daily dose of rabies vaccine in the abdomen. After the sixth dose I discontinued

TABLE 1

Patient	Diagnosis	Age	Duration of Epilepsy	Improvement
R. M. L.	Psychosis with Epilepsy	21	13 years	No improvement
H. W.	Epilepsy without Psychosis	17	17 years	Some improvement
E. F.	Epilepsy with Mental Deterioration	25	8 years	No improvement
F. B.	Epilepsy without Psychosis	17	17 years	Some improvement
R. K.	Epilepsy with Mental Deterioration	21	21 years	No improvement
J. K.	Psychosis with Epilepsy	27	19 years	Slight improvement
C. E.	Epilepsy with Mental Deficiency	31	20 years	Died
R. J.	Epilepsy without Psychosis	30	12 years	Worse

the luminal and attempted to keep them free from attacks by merely continuing with the rabies vaccine. In three of the cases, I had fair success but in all the others I had to supplement my treatment with orders for luminal from time to time.

All but two of the patients received fourteen doses. Of the other two, each received twelve doses. The results that followed can be seen at a glance on Table 1. The first four patients in the table are females and the last four are males. Only one, F. B., was able to get along completely without any luminal for about a month and a half. Following this she began having occasional very slight attacks during which she would only momentarily lose consciousness. However, since at the start, this patient was unable to be without luminal for even fifteen minutes and since she previously had had the severest attacks of the group, I feel justified in concluding that the therapy brought about some improvement in this case.

The other patients all had to be returned to luminal within two weeks following the conclusion of the vaccine treatment. H. W., whose condition was complicated by parathyroid insufficiency that had followed a thyroidectomy, was receiving 100 grains of calcium lactate daily and apparently has shown some improvement as her epilepsy now scarcely causes her any inconvenience. At the present time she is working daily in a kitchen but must take a grain and a half luminal morning and night. J. K., the only male to show any change for the better, is still on luminal but has less severe attacks than he had before treatment.

Of the two patients, both males, who only received twelve doses instead of the regular fourteen, one, C.E., underwent a sudden change in character and developed acute nephrosis. As he became uremic, I discontinued the rabies vaccine — but the patient died. At post-mortem examination, Dr. A. K. Saiki, pathologist at the University of North Dakota Medical School, reported an acute nephrosis either chemical or toxic in origin. The kidneys showed congestion and marked tubular degeneration. A number of the tubules contained hyaline casts. The glomeruli were enlarged and there was a cellular increase. The spaces contained fluid. This as far as I can ascertain is the first reported case of acute nephrosis following the use of rabies vaccine.

In the other case the patient, R. J., began showing albumin and casts in the urine in addition to generally feeling ill. He lost his appetite and was bed-ridden. After discontinuing the rabies vaccine, he gradually improved physically.

SUMMARY AND CONCLUSIONS

1. While at the present time we have no rational basis for the use of rabies vaccine in the treatment of epilepsy, I do feel that I noted some improvement in at least two of the eight cases in which I tried the vaccine.

2. The blood cholesterol is lowered at the time of an epileptic attack. The brain is one of the richest sources of cholesterol. Could the blood cholesterol be increased by the vaccine injections? And if so, would the results be better if uninoculated brain tissue were used? I certainly feel that the problem needs further workup.

3. I also feel that there undoubtedly is danger in the use of rabies vaccine. Following the death from acute nephrosis, I always checked the urines of each patient daily until treatment was concluded. In addition one must always bear in mind the possibility of paralytic accidents with the use of antirabic vaccine.

4. I believe that this approach to the treatment of epilepsy warrants further study.

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A COMPLICATION OF INSULIN SHOCK THERAPY

H. H. Goldstein, M. D., A. P. Bay, M. D., and J. V. Edlin, M. D.
CHICAGO

Since the introduction of insulin shock therapy in the treatment of the psychoses, there has been a tendency to stress the dangers of hypoglycemia. However, in treatment of mental patients, Gleuck[1] in discussing this type of therapy said:

"The dangers of hypoglycemic state are not as great as the dangers connected with some forms of narcotic therapy."

Dussik and Sakel[2] reported three deaths in the course of treatment among their first 104 cases. These deaths were due to status epilepticus, coronary thrombosis and necrosis of pancreas.

Thus far a total of 13 patients have been treated at Chicago State Hospital with insulin. All of the patients have been schizophrenic psychoses. Among those treated were several with typical catatonic features, one of whom developed a lung abscess.

This patient had been given increasing doses of insulin until 310 units were given. At times,

From Chicago State Hospital, Edward F. Dombrowski, M. D., Managing Officer.

during the treatment, the patient became lucid for short intervals but immediately lapsed back into her catatonic state. Treatment was terminated after six weeks because of the tendency to delayed reactions occurring almost daily, at 4-5 P.M. Apparently the large doses of insulin administered resulted in slow absorption and an afternoon hypoglycemia. The patient did not show improvement and was discharged from treatment as unchanged.

Throughout the treatment, it was necessary to tube feed her frequently, although only rarely was the hypoglycemic reaction so pronounced as to produce inability to swallow. Resistiveness was pronounced and it was impossible to keep the patient's mouth clean, so that her gums became quite spongy at times and suggested a mild Vincent's infection. Tube feeding under trying circumstances with pronounced resistiveness was necessary on frequent occasions at noon and evening meals. The usual precautions in avoidance of aspirations were judiciously carried out whenever nasal feeding was necessary.

About two weeks after treatment was discontinued, the patient began to run a mildly elevated temperature and seemed uncomfortable. Three weeks after discontinuance of treatment she was transferred to the hospital ward for observation, where her temperature fluctuated between 101 and 103 degrees. There was dullness in the left infraclavicular area with rales anteriorly in the upper ⅔ of the chest and at the left base posteriorly. Sputum of a thick greenish brown, tenacious and foul smelling, was being expectorated in large quantities, and on examination of a smear showed fusiform bacilli and spirochetes. A diagnosis of lung abscess was made, which was confirmed by x-ray which showed an abscess involving the left infraclavicular area and apex with a large central cavity. Although the immediate cause of this complication is probably aspiration in the course of nasal tube feeding, the urgent necessity of frequent feedings to prevent untoward reactions from treatment places this complication within the group of hazards to be considered in insulin shock treatment of the schizophrenia.

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THE HYPOTENSIVE PROPERTIES OF *ALLIUM SATIVUM*

EDWARD PODOLSKY, M. D.
BROOKLYN, N. Y.

Allium sativum or garlic has been used for many centuries both as a food and medicament. Hippocrates recommended garlic in infectious diseases and Pliny and Galen used it quite extensively. Dioscorides and Sammonicus used garlic as a vermifuge and it is still considered as one even today.

The present study is concerned with the hypotensive properties of allium sativum or garlic. Loeper and Debray[1] found that when the tincture of garlic was given by mouth in small doses of not more than 25 drops, it caused a definite drop in blood pressure. This hypotensive action was most marked in cases with a high initial blood pressure. The systolic blood pressure was reduced to a greater degree than the diastolic. The fall in blood pressure began usually in about thirty to forty-five minutes after taking the garlic and was maintained as long as twenty-four hours. In all cases there was a definite increase in the arterial oscillations, as shown by the oscillometer. This, the authors noted, was a usual concomitant phenomenon with drugs that have an effective hypotensive action.

Loeper, Debray and Pouillard[2] in further studies of the hypotensive action of allium sativum found that with small doses of garlic the blood pressure fell 20 mm or more about an hour after ingestion, and remained at that level for 24 hours. Another dose in 24 hours caused a further fall of a lesser degree.

Pouillard[3] reported a study of the hypotensive action of garlic in patients with hypertension in which he reported a fall in blood pressure accompaned by an increase in the oscillometric index, with slowing of the pulse, regularization of cardiac rhythm and increase of the strength and amplitude of the cardiac contractions.

In a series of patients with advanced arterial changes and high blood pressure, Schlesinger[4] found that under garlic therapy there was a fall in blood pressure as well as improvement in subjective symptoms. The blood pressure fell gradually in most cases (from 5 to 25 mm). It was usually maintained at the lowest level, even during intervals between treatments.

The present series consisted of twenty-five

cases of essential hypertension. The medication used was allimin (Van Patten), an essence of garlic and parsley in tablet form.

Case 1. J. M., age 47; male; B.P. 160/100. Attacks of vertigo and headaches. Appetite poor. No arteriosclerotic changes. Urine showed no kidney pathology. Heart essentially negative. Medication consisted of allimin tablets, 2 with water three time a day after meals. This was continued for three days, omitted on the fourth, resumed for another three days. Was under observation for two weeks. Blood pressure readings were taken every third day. Final reading was 140/90. There was also definite symptomatic improvement, headaches having disappeared and attacks of vertigo less severe.

Case 2. W. C., age 52; male; B.P. 220/110. Suffered from severe headaches and attacks of dizziness. Palpable arteries showed arteriosclerotic changes. Systolic murmur. Kidneys essentially normal. Medication was with allimin, as outlined above. Final reading was 180/100. Headaches less severe, but still suffered from occasional attacks of vertigo.

Case 3. P. F., age 59; female; B.P. 200/120. Attacks of vertigo and headaches. Some arteriosclerotic changes. Heart enlarged, systolic murmur. Urine showed some casts and albumin. Medication with allimin. Under observation two weeks. Final reading, 180/110. Headaches and dizziness less severe. Patient felt more comfortable.

Case 4. I. E., age 48; female; B.P. 180/90. Attacks of headaches and vertigo, vision blurred. Some slight arteriosclerotic changes. Heart somewhat enlarged, otherwise negative. Kidneys essentially negative. Medication with allimin. Under observation two weeks. Final reading 160/80. Improvement in symptomatic condition.

Case 5. A. R., age 64; male; B.P. 240/120. Severe attacks of headache and vertigo. Definite arteriosclerotic changes in palpable arteries. Heart enlarged, systolic murmur. Urine showed some albumin and a few casts. Medication with allimin; under observation for two weeks. The final reading was 190/100. The headaches were less severe in character and vertigo was much less pronounced.

Case 6. G. C. W., age 42; male; B.P. 160/90. Occasional attacks of headache and dizziness. Palpable arteries not sclerotic. Heart and kidneys essentially normal. Medication with allimin for a period of two weeks. Final reading was 140/90. Headaches and dizziness were relieved.

Case 7. Y. C., age 65; female; B.P. 240/120. Very severe headaches and vertigo. Arteriosclerosis of palpable arteries. Heart considerably enlarged. Four plus albumin and numerous casts in urine. Medication with allimin for a period of two weeks. Final reading 240/110. Headaches and vertigo persisted. Condition essentially unchanged.

Case 8. H. R., age 53; male; B.P. 160/100. Occasional attacks of vertigo and headache. No arteriosclerotic changes. Heart and kidneys essentially negative. Medication consisted of allimin. Under observation for two weeks. Final reading B.P. 140/80. Headaches and vertigo gone.

Case 9. B. S. N., age 59; female; B.P. 200/120. Vision blurred. Frequent attacks of vertigo and headache. Arteriosclerotic changes in palpable arteries. Heart somewhat enlarged, systolic murmur. Some albumin in urine, no casts. Was treated with allimin for a period of two weeks. Final reading 180/90. Considerable improvement in subjective symptoms.

Case 10. J. W., age 62; male; B.P. 160/90. Occasional attacks of headache and vertigo. No arteriosclerotic changes. Heart somewhat enlarged. Kidneys essentially negative. Was treated with allimin for a period of two weeks. Final reading was 160/90. Definite improvement in subjective symptoms.

Case 11. H. A., age 67; female; B.P. 260/120. Vision poor. Severe attacks of headache and vertigo. Definite sclerotic changes in palpable arteries. Heart considerable enlarged, systolic murmur, disturbed rhythmic sequence. Urine revealed four plus, albumin and numerous casts. Edema of legs. Was under treatment with allimin for two weeks. Final reading 260/120. No improvement noted.

Case 12. R. B., age 42; male; B.P. 160/90. Occasional attacks of headache and vertigo. No arterial sclerotic changes. Heart and kidneys essentially negative. Was under treatment with allimin for two weeks. Final reading was 135/80. Headaches and dizziness gone.

Case 13. J. S. A., age 54; male; B.P. 180/100. Occasional headaches but no vertigo. Heart somewhat enlarged. Kidneys essentially negative. Was under allimin medication for two weeks. Final reading was 150/90. Headaches cleared up.

Case 14. B. D., age 47; female; B.P. 190/110. Occasional headaches and attacks of vertigo. No arteriosclerotic changes. Heart and kidneys essentially negative. Was under treatment with allimin for two weeks. Final reading was 160/100. Considerable improvement in subjective symptoms.

Case 15. G. G., age 52; male; B.P. 200/120. Headaches severe, frequent attacks of vertigo. No arteriosclerotic changes. Systolic murmur with some enlargement of the heart. A few casts in urine. Was under treatment with allimin for two weeks. Final reading was 175/100. Headaches cleared up and only occasional slight vertigo attacks.

Case 16. T. G., age 64; female; B.P. 210/100. Vision blurred, palpitation of heart, headaches and attacks of vertigo. Heart enlarged, systolic murmur. Some pus in urine and a few casts. Was under treatment with allimin for two weeks. Final reading was 180/80. There was considerable improvement in the patient's subjective symptoms. Headaches gone and vertigo very infrequent.

Case 17. L. L., age 48; male; B.P. 180/100. Rather frequent headaches and attacks of vertigo. Some blurring of vision. Heart somewhat enlarged with a slight systolic murmur. Kidneys essentially negative. Was under treatment with allimin for two weeks. Final reading was 150/80. Considerable improvement in subjective symptoms.

Case 18. A. H., age 69; female; B. P. 260/120. Frequent attacks of headache and vertigo. Vision very poor. Marked arteriosclerotic changes in all palpable arteries. Heart considerably enlarged, loud systolic murmur. Urine revealed numerous casts and four plus albumin. Edema of legs and abdomen. Was under observation and treatment with allimin for two weeks. Final reading 260/120. No improvement noted.

Case 19. M. D. H., age 42; male; B.P. 160/100. Attacks of headache and vertigo occasionally. No arteriosclerosis noted. Heart and kidneys essentially negative. Was under treatment with allimin for two weeks. Final reading was 135/80. Considerable improvement in clinical condition.

Case 20. I. C., age 54; male; B. P. 190/120. Rather frequent attacks of dizziness. Headaches severe. Slight sclerotic changes in palpable arteries. Heart and kidneys essentially negative. Was under medication with allimin for two weeks. Final reading was 160/100. Considerable improvement in subjective symptoms.

Case 21. O. H., age 59; female; B.P. 160/100. Occasional attacks of vertigo. Headaches. Some blurring of vision. Heart somewhat enlarged. No sclerotic changes. Kidneys essentially negative. Was under treatment with allimin for two weeks. Final reading was 140/80. There was considerable improvement in patient's subjective condition.

Case 22. K. A., age 62; female; B.P. 190/120. Severe headaches and rather frequent attacks of vertigo. Heart enlarged, systolic murmur. A few casts in urine and some albumin. Some sclerotic changes in palpable arteries. Was under treatment with allimin for a period of two weeks. Final reading was 160/100. Definite clinical improvement in general condition.

Case 23. N. K., age 49; male; B.P. 160/90. Occasional attacks of headache and vertigo, some blurring of vision. Heart and kidneys essentially negative. No arteriosclerotic changes noted. Was under treatment wit hallimin for two weeks. Final reading was 135/80. Considerable improvement in subjective symptoms.

Case 24. D. A., age 62; female; B.P. 220/120. Frequent attacks of severe headaches and dizzy spells. Heart considerably enlarged, systolic murmur, disturbed rhythm. Urine showed a few casts and some albumin. Definite sclerotic changes in palpable arteries. Was under treatment with allimin for two weeks. Final reading was 180/90. Considerable improvement in symptoms.

Case 25. W. H. T., age 43; male; B.P. 180/100. Occasional attacks of headache and vertigo. No sclerotic changes of palpable arteries. Heart and kidneys essentially negative. Was under treatment with allimin for a period of two weeks. Final reading was 150/80. Considerable improvement in patient's subjective symptoms.

Summary. A series of 25 cases of hypertension were treated with allimin (Van Patten), a preparation containing essence of garlic and parsley. These patients were under treatment for a period of two weeks, the dose being 2 tablets of allimin three times daily after meals for three-day periods, skipping the fourth day. No other medication was used.

In all but three cases of this series there was a drop in both systolic and diastolic blood pressure. The maximum average was a drop of 20 mm, which confirms the results of Loeper, Debray, Pouillard and others.

There was considerable improvement in subjective symptoms in the majority of patients treated. Headache and dizziness were either entirely relieved or considerably lessened.

There were no changes in the condition of the heart or kidneys when these showed definite pathological changes. When arteriosclerosis was part of the picture there was no change in the arteriosclerosis, although the blood pressure was reduced.

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7518 Nineteenth Ave.

SOME OBSERVATIONS ON CANCER, IRRADIATION REACTION AND RADIOSENSITIVITY

EDWIN N. KIME, M. D., and
DON D. BOWERS, M. D.,
INDIANAPOLIS, IND.

Important contributions by statisticians, surgical pathologists, biologists, radiologists, clinicians and surgeons have stimulated our hopes as to the control of cancer. A study of these contributions reveals the complexity of the subject and the necessity of cooperative teamwork in the practical application of our present knowledge, even though the primary cause of malignant disease is as yet unknown. Thousands of lives could be saved yearly by the prompt cooperative efforts of those in our profession who are called upon to advise or treat patients with potential or actual cancer. Since we are all engaged in the business of saving human life, serious and difficult as it is, we are urged to consider all phases of data already at hand, and apply our

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knowledge promptly and courageously at every opportunity. David Starr Jordan once said, "The greatest wisdom is to know exactly what is the best thing to do next, and the greatest virtue is to waste no time in doing it."

Two different aspects of the etiology of cancer have been revealed[1]; the proximate cause, or cellular changes when the cell becomes malignant, and the remote causes, or those factors which produce this cellular change.

We definitely know some of the remote causes of human cancer. We know that the incidence of cancer increases with advancing age, and that the carcinogenic agent probably acts over a long period of time, associated in most instances with protracted irritation of tissue by some extraneous agent. We know that cancer is a disease of multicellular organisms, not limited as to geography, climate, race or species, although variations in organ incidence do occur. We know that cancer statistics show a rising mortality curve, more marked in the male,[2] and being influenced by increasing longevity and improved technique or diagnosis. We know that the incidence of cure is greater and the mortality rate is declining in the more readily accessible neoplasms. The remote causes of occupational cancer have been identified and this form is now preventable. Cancer of the skin and mouth are far more common in the male. Cancers of all exposed sites are more common among the lower social classes.[1] This fact has led to the term "social cancer," which arises from chronic irritation, general living conditions, and habits of life associated with filth, infection—notably lues—as well as chemical and mechanical trauma or other physical agents. W. Cramer[1] has shown the incidence of gastric cancer increasing as one descends the social scale, as shown in Chart No. 1. The upper classes are avoiding in some measure the remote causes; this fact modifies the incidence of internal cancer of exposed sites, which may thus become preventable.

Chart 1

SHARE OF GASTRIC CANCER IN TOTAL MORTALITY FOR DIFFERENT OCCUPATIONS, MALES, BAVARIA, 1924-1928
(W. CRAMER)

Social Class	Description of Occupation	Stomach Per Cent	Absolute No. Cases
I	Merchants, high officials, lawyers, doctors	38.8	2,084
II	Office workers	40.1	970
III	Publicans, brewers, small officials	48.5	2,140
IV	Skilled workmen	56.8	4,247
V	Unskilled workmen	63.4	2,423
VI	Agriculture	68.5	6,907

Hereditary susceptibility to cancer exists and is greater for women than men, the significance varying for different sites. We cannot, however, arbitrarily condemn the offspring of any cancerous patient.

A number of chemical agents can produce tumor growth in laboratory animals. Certain compounds produce certain tumors of certain tissues. However, how these compounds act, what is necessary in the tissues, and whether cancer in man is the same as in experimental animals, is unknown. The biochemical test for carcinogens in tumor production is negative, as the agent may be applied and the tumor form much later without the compound being present at the time of its formation. Analysis does not reveal the carcinogen in the growth or its metastases.

Tissue changes may be produced by hormones such as oestrone, testesterone and progesterone. Oestrone has produced hypertrophy, hyperplasia and neoplasia in the uterus, ovaries and breasts of rats. Ovarian hormones seem to favor the growth of breast cancer in man. Secretions from spleen, thyroid, thymus, adrenals and other tissues seem antagonistic to the growth of malignant tumors. There is no published work indicating that such extracts will eradicate carcinoma.

Attempts to produce mutations in tissue cultures grown by Gey's method are being watched with interest.

The gamma rays of earth and cosmic radiations are carcinogens. However, it has been shown[3] that these agents as occurring in natural radiations are at least one thousand times too weak to excite mutations.

Irradiation Reaction. By studying tumors undergoing irradiation the types of cells which are susceptible and how they change under irradiation has been shown. Our knowledge of irradiation reaction and radiosensitivity depends upon these observed changes. Such knowledge is essential in the present day treatment of neoplastic diseases.

Tumor cells subjected to irradiation show variations in mitoses and inhibitions of metabolic activity.[4, 5] The nucleus may be the special point

of injury to the cell,[6] and hyperchromatism, pyknosis, shrinkage, karyorrhexis and disintegration occur. The cytoplasm becomes hydropic. Smaller vessels undergo necrosis of the walls with resulting hemorrhage, and the larger vessels a slower obliterative endarteritis with embolism and infarction. Hyalinization occurs, and there is clasmatocytic activity with connective tissue proliferation. Lymphocytic infiltration is an important feature. Autolytic ferments may be formed from cellular disintegration and serum activity, and plasma cell infiltration of intercellular spaces is prominent. The permeability of vessel walls and cell membranes is increased, with changes in diffusion between blood and tissues, oxidative and nutritional disturbances.[7] The bed of the tumor reacts with vascular obliteration and connective tissue proliferation. Thus the caustic and ionizing action of irradiation causes a complex bio-chemical reaction in the tissues.

Repair After Irradiation. Tissue repair after irradiation takes place by physiological processes similar to repair under other conditions. The mobilization of lymphocytes and plasma cell activity may be antagonistic to the cancer process.[8, 9] Connective tissue proliferation may be active and areas of cell destruction may be replaced by indolent connective tissue with little blood supply. This often occurs after repeated irradiation. Nests of viable tumor cells may remain secluded. Such process is known as "abortive fibrosis."

Certain phases of repair after irradiation differ from the usual repair mechanism. These bear on radionecrosis which results from the caustic action of irradiation on tissues within the zone of its activity. The destruction of muscle and the formation of sclerotic foci results in functional impotence of the muscle. In smaller vessels the parietal elements may be destroyed producing thrombosis. Necrosis of the walls of larger vessels with circulation persisting may result in perforation and serious hemorrhage. Destroyed nerves have slight tendency to regenerate. The elements of bone having high atomic weight are easily injured, the haversian systems destroyed resulting in necrosis and slough. Necrosis of walls of hollow viscera results in perforation. Secondary infection may be severe as bacteria find soil for prolific growth. Nests of viable tumor cells may be suspended in fibrosis with associated disturbances of circulation and diminished resistance to cold, trauma and bacterial infection. Such a reaction may result in late radionecrosis.

Proper filtration is the best guard against radionecrosis. More certain destruction of tumor cells is accomplished by the caustic action of unfiltered rays. Yet a tumor is rarely of uniform contour and therefore the rays must penetrate healthy tissue if they reach outlying tumor cells. If caustic action is desired there are many caustics, radioactive caustic being the most expensive, dangerous and difficult to control. There is no reason to prefer it to others.[10]

Radiosensitivity. Radiosensitivity is "that combination of circumstances resident within the tumor or host which permits marked or total regression under doses of irradiation sufficiently small to preserve the integrity of the tissues of the host."[11]

We wish to discuss the circumstances permitting regression. However, an analysis of the definition with regard to other factors will first clear up misunderstandings which exist regarding radiosensitivity.

Marked regression in mass of tumor tissue constitutes a sensitive response. Such response may be extremely active—so active as to threaten the patient's life. Such a reaction may occur from the absorption of necrotic, hemorrhagic and liquefied tissues in certain thymoma, or from the spleen of myelogenous leukemia treated by irradiation. In such instances the spectacular regressive response does not result in permanent regression or cure. In other instances the response may be slow and progressive with gradual atrophy over days and months. Complete clinical regression may occur. Such regression does not imply histologic regression or cure however, as frequently after such results histologic studies reveal islands of viable tumor cells the future of which may not easily be prognosticated. Therefore radiosensitivity does not imply or indicate the probability of cure by irradiation.[11]

Nor does knowing that a certain tumor is relatively resistant indicate that irradiation may not be efficacious in attack. Some such tumors may be clinically cured by irradiation. In such instances, however, as in certain tumors of the hypopharyngeal group, it is often necessary to submit the tissues of the host to irradiation damage which may result in functional defect

or troublesome complications. In other instances highly caustic irradiation may be required to produce clinical regression; such irradiation would not be necessary except for resistant lesions. Therefore, the fact that a tumor regresses under irradiation does not mean that it is radiosensitive.

The term radiosensitivity should not be confused with an histologic grade of malignancy, as many other important factors determine the result of response to irradiation.

The term radiosensitive is relative.[11] If one says a carcinoma of the breast is sensitive, one implies its sensitivity according to the scale of behavior of breast tumors and not according to the scale one applies to lymphosarcoma.

Those factors in the tumor and host which control reaction to irradiation determine radiosensitivity, the more important being listed in Chart No. 2.

Chart 2

- General Condition of Patient or Vitality Host
  - Anemia
  - Cachexia
  - Age
  - Heredity
  - Infection
- Fundamental Nature of Tumor
  - Histogenesis
  - Embryogenesis
  - Rate Metabolism or Cycle Tumor Cell
    - General Physiology Tumor Cell
  - Grade of Malignancy
    - Cell Differentiation and Arrangement
    - Number and Character Mitoses
      - (Vulnerability of Mitoses)
    - Inherent Differences in Individual Cell Population
  - Lymphocytic Infiltration
  - Fibrosis
  - Hyalinization
  - Presence of Secretin, Mucin, Keratin
  - Vascularity of Tumor
- Nature of Bed of Tumor
  - Vascularity
  - Fibrosis
  - Bone
  - Cartilage
  - Fat
  - Infection
- Presence of Active Infection in Tumor
- Previous Irradiation
  - Adequate (Radium Fast)
  - Inadequate
- Amount of Infiltration or Direction and Degree of Spread
  - Regional and Deep Metastases
- Biologic Sensibilization (Endocrine)

The vitality of the patient plays an important part and may determine the response to irradiation. Younger subjects in good health usually yield promptly the anticipated result. In the aging host with poor circulation, anemia, cachexia or debilitating disease tumors may fail entirely to respond. Hereditary factors or general infection may lower vitality to impede or obstruct response. Often when the foregoing factors are present treatment makes the patient worse and the tumor is not affected. In many instances blood transfusions are advantageous and at all times a sound clinical point of view must govern treatment.

The radiosensitivity of a tumor varies with the fundamental nature of the tissue of origin and this factor outweighs all other considerations in estimating sensitivity. Various normal tissues react differently to irradiation, each having its "specific sensitiveness." The difference in response in tumors is comparable to the difference in response of normal tissues.[12] This selective action of rays is "a dominant fact of radiology, and deserves to be recognized as a law" and apparently is related to the life cycle and general physiology of the different cells.

The degree of sensitivity of a tissue or tumor cannot be calculated with mathematical accuracy, therefore tables are misleading and specious, suggesting only a relative estimate and containing no accurate measurement. Chart No. 3 has been compiled from Desjardins' estimation of the relative sensitivity of normal tissues.

Chart 3

COMPARATIVE RADIOSENSITIVITY OF NORMAL TISSUE CELLS

(As Estimated by Desjardins)

Type Cells	Sensitivity*
Lymphoid	+ + + +
Polymorphonuclear and Eosinophilic Leukocytes	+ + +
Basal Epithelium of Salivary Glands and Certain Other Secretory Glands	+ + +
Basal Epithelium of Testis (Spermatogonia Cells)	+ +
Epithelium of Ovary (Follicular Epithelium and Ova)	+ +
Connective Tissue Cells (Young)	+ +
Basal Epithelium of Skin, Mucous Membranes, Gastro intestinal (Stomach and Small Bowel)	+
Endothelium of Blood Vessels	+
Endothelium of Pleura	+
Endothelium of Peritoneum	+
Alveolar Epithelium of Lungs	—
Alveolar Epithelium of Bile Ducts of Liver	—
Muscle	—
Epithelium of Tubules of Kidneys	—
Connective Tissue Cells	— —
Bone	— — —
Nerve	— — — —

*

+ + + + Extremely Sensitive
+ + + Highly Sensitive
+ + Sensitive
+ Relatively Sensitive
— Comparatively Resistant
— — Resistant
— — — Highly Resistant
— — — — Most Resistant

Lymphocytes have the shortest metabolic cycle and prove most sensitive; nerve cells have the longest life cycle and prove most resistant.

According to Ewing[8] the general physiology of the cells largely determines the reaction to irradiation without regard to other factors such as anaplasia or embryonic origin. Loose structure and active cell metabolism as in lymphoid tumors tend to produce sensitivity. Orderly glandular arrangement, fibrous tissue production, and mucous barriers to irradiation as in adenomas and adenocarcinomas, reduce sensitivity. Keratinization as in epidermoid carcinomas and the intercellular tissue occurring in osteogenic and neurogenic sarcomas produce resistance.

The metabolic cycle of embryonic cells being short, the greater the display of embryonal quality the more sensitive the tumor. The delicate vascular supply and failure to produce fibrous tissue increase the sensitivity of embryonal tumors also. This failure to produce abortive fibrous tissue reaction, coupled with the presence of viable cell nests in rapidly regressing degenerating tumor mass, may explain the almost universal recurrence of these tumors after irradiation regression. The high embryonal quality of embryomas of the testis and ovary, and of Wilm's tumor of the nephritic anlage (embryonic adenomyosarcoma) is associated with very high radiosensitivity. The embryonal adenocarcinoma or seminoma of the testis is sensitive, reacting in proportion to the relative amount of spermatogonia cells.[12] Mixed or teratoid tumors are usually resistant but may contain considerable spermatogonial epithelium and react in proportion.

Recent cooperative efforts of pathologists to devise a uniform system of classification of histologic grade of malignancy are meritorious. One cannot overrate the advantages of a histologic study of the basic structure, degree of anaplasia and number and character of mitoses. The prognosis and management of any tumor should not be undertaken without knowledge gained by such a study.

Broders[18] studied epidermoid carcinoma, placing neoplasms, in which the type cell is undergoing the most advanced differentiation, which is therefore the least malignant, in Group I. Those showing the least differentiation, the most malignant, in Group IV. Chart No. 4 shows a graphic representation of this classification and the relationship between cell differentiation and postoperative life, therefore prognosis.

Chart 4

GRADATION* OF SQUAMOUS CELL EPITHELIOMA OF THE LIP

(BRODERS) 537 CASES

*Graded by Differentiation of the Malignant Cells

	Grade I	Grade II	Grade III	Grade IV
	D| / D|D / ¾D	| / D|D / ½D	| / D| / ¼D	| / | / OD
Occurrence	15.82%	62.01%	21.04%	1.11%
Deaths	0.00%	52.90%	84.21%	100.00%

Quantity of differentiation plays a role in postoperative longevity. It is not the only factor however.

MacCarty[14] has studied the relationship of lymph node involvement and length of postoperative life to the histologic characteristics of tumors of the breast, rectum and skin. With observations based upon four factors: cellular differentiation, lymphocytic infiltration, fibrosis and hyalinization he found the combination of factors of more prognostic value than any single factor. Chart No. 5 shows the percentage increase in postoperative life in relationship to these factors.

Chart 5

PERCENTAGE INCREASE IN POSTOPERATIVE LIFE

(MACCARTY)

(D) Differentiation of the malignant cells
(L) Lymphocytic infiltration surrounding the malignant cells
(F) Fibrosis in relation to the malignant cells
(H) Hyalinization in relation to the malignant cells

Breast	Rectum	Skin	Average
LDFH 189	LDFH 281	LDFH 723	LDFH 402
DH 96	DH 196	LF 376	LF 169
DF 95	DL 123	DF 214	DH 168
LF 92	FH 82	DL 211	DL 129
HL 64	LH 77	DH 127	DF 115
DL 54	H 61	F 121	LH 66
D 54	D 42	D 94	D 63
FH 49	LF 41	FH 60	FH 63
F 45	DF 37	H ?	F 61
H 27	F 19	LH 58	H 29
L 1	L 19	L 43	L 21

Evans in 1920 first called attention to the importance of mitosis count in the determination of the grade of malignancy. More recently Casey[15] has determined the number of mitoses counted per one thousand tumor cells, which he terms the coefficient of mitosis. He finds the same coefficient in biopsies of the primary growth, metastases and recurrences. Malignant epithelial and non-epithelial tumors show a coefficient of more than 4, benign growths a coefficient less than 4. He has shown a relationship between prognosis and the coefficient of mitosis of biopsy.

Radiosensitivity increases with increasing anaplasia, and disregarding other factors, the

higher the grade of malignancy the greater the sensitivity. Yet not all anaplastic tumors are sensitive; some are resistant. The significance of anaplasia in determining sensitivity varies with the fundamental nature of the tumor. However, the grade of malignancy bears a direct relationship to the tendency for extension and metastasis, and in group prognosis is of great value.

In certain tumors undergoing regression after irradiation the presence of viable cells or cell islets cannot be correlated with any demonstrable vascular or connective tissue changes surrounding them. These cells must retain their viability because of inherent differences in metabolic activity as compared to the more sensitive cells in the same tumor.[19, 20]

Connective tissue proliferation within the growth (before irradiation) or the desmoplastic character decreases radiosensitivity. Ewing[8] believes this the most important factor rendering tumors resistant. Whether the resistant quality is due to the desmoplasia, or whether the desmoplasia slows the growth activity and metabolic cycle of the cells is problematical.

Highly vascular tumors are relatively more sensitive, and tumor cell necrosis often results from irradiation vascular changes, which have been described. Pullinger[16] has stated that all effects following irradiation are related to vascular "stimulation" and vascular degeneration. The vascularity of the bed is important as active circulation in the tumor is essential to irradiation response. Vasoligation prior to irradiation diminishes its effect. Ischemia resulting from irradiation is part of the response, but ischemia prior to irradiation negates the response to it.[17]

The presence of active infection in the tumor or in the tumor bed interferes with successful irradiation. Treatment aggravates the infection and the tumor cells seem to proliferate more readily. Tumors in syphilitic hosts respond if hosts are under treatment, the permanence of response is unaffected, but injuries to the host tissues by irradiation are more frequent.[18]

Bone, cartilage and fibrous tissue constitute a poor bed for irradiation. Fat breaks down, saponifies and forms a barrier to irradiation. Connective response is poor in a fatty bed.

The presence of tumor cells in lymph nodes may increase or decrease the sensitivity. According to Ewing lymphocytes may be antagonistic to tumor cells, yet they are also radiosensitive and easily destroyed by irradiation. The capsules of certain nodes as in the axilla are poorly developed and readily traversed by tumor cells.

Ewing has graphically shown the relative importance of some of the foregoing factors in radiosensitivity (Chart No. 6).[8]

Chart 6

APPROXIMATE ESTIMATE OF RADIOSENSITIVITY

(EWING)

Embryonal	Slight +20	Marked +40	Pronounced +50
Anaplasia	Slight +10	Marked +15	Pronounced +20
Lymphoma	Simple +10	Recticulum cell sarcoma +15	Atypical +20
Epidermoid carcinoma	Adult —10	Transitional basal-cell —0	Lympho-epithelioma +20
Glandular carcinoma	Adenoma —10	Adeno-carcinoma —5	Carcinoma —0
Desmoplastic quality	Slight —10	Marked —15	Pronounced —20
Neurogenic sarcoma	Fibro- —30	Cellular —0	Atypical +10
Osteogenic sarcoma	Bone formers —30	Periosteal fibrosarcoma —5	Cellular vascular types —0
Bed of tumor	Bone scar —40	Normal 0	Lymph nodes +5
Condition of patient	Normal 0	Anemic —10	Cachectic —40

Previous irradiation always increases resistance by lessening the metabolic activity of the tumor cells, producing fibrous tissue and ischemia within the tumor and bed until the tumor becomes "radium fast" with repeated exposures.

The relationship of certain hormones to neoplasms has been mentioned. Such biologic factors may influence irradiation reactions. The effect of castration on uterine myomata is well known. Irradiation of the pituitary and ovaries sometimes increases the sensitivity of breast tumors and their metastases and causes their regression. Removal of malignant serous and papillary cystoma of the ovary has caused regression of diffuse metastases of the peritoneum. Irradiation of thyroid carcinoma has caused regression of widespread metastases without further treatment.

There are factors which interfere with irradiation by preventing the delivery of proper dosage to the tumor tissue. Some of these have already been mentioned. These are the so-called barriers to irradiation, some of which are listed in Chart No. 7.

Chart 7

SOME BARRIERS TO IRRADIATION

Sensitive Surroundings
Depth of lesion
Contour, size and direction of growth of lesion
Barriers in lesion, lesion bed, or surroundings as fat, cartilage, bone, keratin, mucin, secretin, fibrosis, hyalinization, exudates
Proximity to vital structures—large vessels, viscus, meninges
Foreign body interference as Artificial dentures (secondary radiation)

Chart No. 8 shows an approximate estimate of the sensitivity of tumors of different histologic types and locations, and is compiled from the work of Stewart[11] and others.

Desjardins[21] in discussing the radiosensitivity of tumors has emphasized the importance of considering the quality of ray and scheme of irradiation. He believes these factors as important as the dosage in estimating the sensitiveness of tumor cells. He has defined the radiosensitiveness as "the relative susceptibility of normal or pathological cells, or of tumors derived from such cells, to a given dose of roentgen rays or radium, when exposed according to a comparable scheme of irradiation." He believes that the other combined factors influencing radiosensitiveness with the exception of secondary infection of the tumor, of less importance than the natural radiosensitiveness of the different types of cells. This may be true as a general rule, yet in certain instances the desmoplastic state and other factors within the tumor combine to give wide variations in reaction to irradiation in tumors of the same fundamental nature, and all factors should be carefully considered.

With consideration of the fundamental nature of the origin of tumors, Desjardins has graded tumors according to their relative radiosensitiveness compared to the radiosensitiveness of normal skin as shown in Chart No. 9.

Chart 9

RELATIVE RADIOSENSITIVITY OF TUMORS (DESJARDINS)

Radiosensitive Tumors
(Sensitiveness greater than that of skin)

Group
1 Lymphoblastoma Lymphosarcoma, Hodgkin's Disease
Lymphoepithelioma
Diffuse endothelioma (Ewing) or Endothelial myeloma (Kolodny) of bone
2 Embryonal carcinoma (seminoma) of testis (spermatogonial cells)
Embryonal carcinoma of ovary (follicular epithelium)
3 Giant cell tumor of bone
Wilm's tumor of kidney
Multiple myeloma of bone
Basal cell epithelioma
Transitional cell epithelioma
Mucoid carcinoma of intestinal tract (mucous secreting epithelial cells)
Hemangioma
Hemangio endothelioma

Moderately Radiosensitive Tumors
(Sensitiveness approximates that of skin)

Group
1 Carcinoma of uterine cervix
Carcinoma (not adenocarcinoma) of thyroid
2 Epithelioma of tonsil and pharynx
Carcinoma of breast
Epithelioma of bronchus
Epithelioma of lip and eyelids
Epithelioma of mouth and tongue
Epithelioma (squamous cell) of skin
Carcinoma of rectum
Chondrosarcoma of bone

Radioresistant Tumors
(Sensitiveness less than that of skin)

Fibromyoma (uterus) direct irradiation
Fibrosarcoma
Carcinoma of esophagus and stomach
Adenocarcinoma anywhere, with possible exception of uterine cervix
Mixed tumor of parotid gland
Hypernephroma
Sarcoma of bone, osteogenic
Melano epithelioma and non-melanotic melano epithelioma of skin
True teratoma
Neurofibroma
Fibroma
Chondroma
Lipoma
Myxoma
Myxosarcoma

Comparative Radiosensitiveness Epithelial Tumors

Group
1 Lympho epithelioma
2 Mucoid carcinoma of intestine
Carcinoma of uterine cervix
Carcinoma (not adenocarcinoma) of thyroid
Basal cell epithelioma of skin
3 Transitional cell carcinoma
Epithelioma of tonsil and pharynx
Epithelioma of bronchus
Epithelioma of lips and eyelids
Epithelioma of mouth and tongue
Carcinoma of bladder
Carcinoma of breast
Carcinoma of anus, rectum, penis and vulva
4 Carcinoma of esophagus and stomach
5 Adenocarcinoma anywhere, with possible exception of uterine cervix
6 Melano epithelioma and non-melanotic melano epithelioma of skin

Chart 10

FACTORS IN DIAGNOSIS, PROGNOSIS AND TREATMENT (ACCESSIBLE NEOPLASMS)

Tumor
Type and histologic grade
Anatomic location
Extension, "direction" and fixation
Size and duration
Presence or absence of lymph node involvement
Previous treatment, trauma and infection
Radiosensitivity growth and bed
Patient
Age
Renal and cardiac insufficiency
Anemia
Loss of weight
Infection
Cooperation

Histologic Type and Grade of Tumor. The primary requisite in the management of any dis-

ease is diagnosis. This is true in cancer. The most valuable single accurate diagnostic aid in cancer is a microscopic one, and knowledge of the nature of the tumor is the foundation for making all decisions. Therefore we believe that biopsy—each type indicated as preoperative, excisional, operative frozen section and postoperative for checkup—is the prime requisite in diagnosis, and of extreme value in determining and controlling treatment. Wherever possible we use the electrosurgical biopsy because of its obvious advantages. The aspiration biopsy of Martin and Ellis is of value in less accessible growths. We do not agree with those who maintain that biopsy is rarely if ever necessary, and that tissue studies are of value only in postoperative and necropsy specimens. We believe that reports of results of any treatment of cancer are to be questioned unless supported by microscopic studies.

The most malignant growth is chorioepithelioma, then small round cell sarcoma, melanocarcinoma, adenocarcinoma, fibrosarcoma, squamous epithelioma, basal cell carcinoma and epulis in order.

Determination of the grade of malignancy by basic structure, degree of anaplasia, character of mitoses, lymphocytic infiltration, hyalinization fibrosis or desmoplasia is of value in determining metastatic and infiltrative tendencies especially in tumors of high and low grades. However, there is no system of grading of absolute value in prognosis of any individual case, and the summation of all factors accurately determined will tell much more than any microscopic examination.

We have already discussed the microscopic and clinical factors in determining the radiosensitivity of a tumor and its probable reaction to irradiation.

Anatomic Location of Tumor. The most reliable guides to prognosis and treatment in an individual case are indicated by careful clinical examination, and the location is probably as important as any single factor. Accessibility and proximity to vital structures are considerations of paramount importance. Cancer of the skin is least fatal; buccal, nasal and sinus carcinoma more so; followed by breast, female genitalia and rectum.

A great majority of all cancerous lesions arise in accessible sites and most of these are sufficiently localized in the early stage to be cured by proper treatment. The outcome in these cases is determined by the vigilance of the physician.

The importance of the more common precancerous lesions should be recognized by all physicians. Ulcers, fissures, erosions, cysts, polyps, papillomata and keratosis may become malignant by the continued action of remote carcinogenic agents. Deeply pigmented moles are especially dangerous. In the uterine cervix chronic infection, erosion and cystic degeneration frequently precede carcinoma. Leukoplakia of the mucous membrane of the mouth, and portio vaginalis of the cervix and of the vulva are precancerous. Malignant changes may be initiated by chronic irritation or by unsuccessful efforts to destroy the lesion by obsolete or inadequate methods such as burning or fulguration without anesthesia, acids, caustic paste and inadequate irradiation.

Accessible localized malignant lesions occur on the general skin, lip, ear, nose, buccal mucosa, tongue, vulva, and in the less accessible rectum, breast and soft tissues.

For such precancerous and accessible localized malignancies we prefer electrosurgical excision with local anesthesia by the "excisional biopsy" as the method of choice in treatment. This method has the advantages of hemostasis, protection from dissemination of cancer cells, or infection into surrounding tissues, and preserves the specimen in toto for histologic study, an advantage of more than academic importance. Incision through healthy skin to expose an underlying growth may be made by scalpel. More extensive lesions are treated by combined methods. We feel that the safety, control and uniformly good results from proper electrosurgical excision followed by routine biopsy upon all specimens give this method decided advantages over others in the treatment of precancerous and readily accessible neoplasms. There is no excuse for inadequate measures from either standpoint, diagnosis or treatment. Cosmetic factors and delayed healing time are of much less importance when efficiency as to cure is at stake.

The location of a tumor close to vital structures may modify the application of surgery and irradiation. The prognosis of cancer of the esophagus is poor because of the technical difficulties of applying either method. Cancer of the cervix is more serious than cancer of similar structure elsewhere (as in the oral cavity), but

the resistance of the bed to damage permits intensive irradiation which may not be tolerated elsewhere.

The prognosis for tumors of different areas of the same organ may vary. Cancer of the tongue is less vicious on the anterodorsal area, more so on the infralingual, and most when located on the posterodorsal area.

Tumors may occur in certain locations such as the breast and cervix, which because of the character of lymphatic drainage may make difficult the determination of degree of extension. What may seem a localized growth may already have extended imperceptibly into outlying lymphatic channels. Cutler's transillumination and duct injection of opaque media are aids in differentiating breast tumors.

Size and Duration of Growth. The importance of size varies greatly with the type of growth. Large superficial benign lesions such as basal cell epithelioma may carry a good prognosis. Everting, fungous, papillomatous growths may pile up and remain localized. The importance of the size varies with the location, and in lip cases the size of the growth is comparable with the degree of malignancy and the duration; the size may be a guide to the probable length of life. Duration of growth is of slight value in low grade growths which may exist for years as such. In more vicious types the duration is of some aid in determining the probable degree of extension.

Extension, Direction of Growth and Fixation. In the determination of prognosis in an individual case the extent of the disease outweighs all other factors. The fact that extension has occurred does not negate the possibility of cure but lessens it materially. Invasive growth, induration or infiltration about the growth and ulceration all indicate extension. Eversion or outward proliferation is less virulent than inversion or infiltrative spread. "Beware of the cancer which is going away from you" (Mayo).

Adherence to bone, cartilage, or fascia, "frozen neck or pelvis," are grave prognostic signs.

The degree to which the prognosis may be modified when extension has occurred depends upon the type and extent of growth and accessibility of the entire disease to surgery and irradiation individually or as adjuncts.

The tendency of cancer of the breast, cervix and body of the uterus to spread along draining lymphatics makes prognosis and treatment difficult in certain instances. For this reason and in order to seal the lymphatic channels and reduce the activity of the growth by vasculo-connective tissue sclerosis we favor preoperative irradiation by the divided dose technique. In the breast and corpus uteri surgery is indicated in operable cases. In the cervix what appears to be an early growth may already have spread, therefore the outlying cells and not the uterus is the point of attack. For this reason irradiation has supplanted surgery as the method of choice in the treatment.

The frequency with which we are called upon to treat disease which has become extensive following irradiation failure in radioresistant epidermoid carcinoma of the general skin, lip, buccal mucosa, anterior tongue, nose, ear and vulva has convinced us that early complete removal with histologic study should be the treatment of choice in localized growths. Widespread mutilating operations are frequently necessary for the removal of cancer and tissues damaged by irradiation. To arrest the disease in certain instances we have been compelled to perform amputations, bone resections, sequestrations, enucleations, ligations of major vessels and other major procedures which would have been avoided by early complete removal of the affected tissue in toto.

Node Involvement. The presence of node involvement is a bad prognostic sign. In surface lesions which ulcerate the involvement of glands may be more apparent than real. Inflammatory hyperplasia is difficult to distinguish from glands containing tumor cells unless the glands are quite large and obviously tumefied. For this reason reports of cure of such apparent involvement are not reliable unless controlled by microscopic studies. Glands apparently involved from radiosensitive lesions are irradiated; if involved from resistant lesions and accessible, resection is undertaken. This principle applies especially in the neck.

The presence of distant metastasis is a grave prognostic sign and such lesions are treated by irradiation for palliative effect only.

Previous Treatment, Trauma and Infection. Uncertain prognosis as to life and definitely poor prognosis as to mutilation follows maltreatment by traumatizing measures. It is hardly complimentary to our profession that temporizing and

inadequate, deleterious methods are applied in a condition in which the ultimate fate of the patient depends upon prompt and complete extirpation.

Patient. The age of the patient may modify the prognosis. "The older the patient the less virulent the growth." However, we do not feel that treatment of cancer should be denied a patient because of age alone. A procrastinating attitude expecting that the patient will succumb before extension occurs has too frequently resulted in untold agony and a "stinking death" from extensive ulceration and necrosis. All of which might have been avoided by simple early complete removal of a localized growth.

Renal and cardiac complications and anemia may be significant. At times the condition of the patient may delay or deny him appropriate treatment. Response to treatment may be inhibited by lowered vitality or infection such as untreated syphilis. Anemia related to the growth is a grave prognostic sign.

Loss of weight is more apt to be due to failure of food intake, toxemia from infection, or failure of absorption. Insomnia due to pain from infiltrating, extensive or infected lesions may cause general loss of vitality. Toxemia from viable cancer cells is questionable.

A sound clinical point of view must govern all treatment and prognostic attempts. The patient must be treated as well as the disease process. Pain should be controlled by suitable methods, keeping in mind recent advances in therapy such as improved analgesics, neurectomy, nerve injection and spinal cord injection. Irritational factors may be removed by supplementary surgical measures such as colostomy and ureteral transplantation. Gastrotomy may be necessary for nourishment or tracheotomy for respiratory obstruction.

The mental attitude of the patient must be considered as continued co-operation is essential. There is no circumstance more discouraging than the necessity to submit to many of the procedures deemed necessary by the physician in an effort to control cancer. Encouragement with sympathetic understanding is a valuable part of the physician's armamentarium and "a good prognosis to the patient and a guarded prognosis to the relatives" (Mayo) is a sound basis for approach.

CONCLUSIONS

Much practical knowledge has accumulated which aids us in the control of cancer. We should be alert to grasp accumulating information and keen in cooperative efforts to apply it.

The surgeon and radiologist must develop close teamwork with the surgical pathologist, upon whom lies the responsibility for determining the type of tumor, grade of malignancy, and probable degree of radiosensitivity.

The determination of prognosis and treatment must be developed from a thorough diagnosis, complete understanding of the nature of the tumor and its extent and a complete clinical study of the patient.

A broad clinical attitude and underlying principles of surgery and irradiation, including knowledge of reaction and radiosensitivity, must govern the type of treatment outlined.

Electrosurgical technique, because of its added protection and hemostatic effect, is particularly advantageous in treating early accessible lesions, and also in combined methods of treating more extensive disease.

Surgery, roentgen and radium radiation are adjunctive, and should be considered as such, in the treatment of more extensive lesions of the external envelope, nasal cavity and sinuses, mouth, breast, vulva, anus, rectum and body of the uterus.

Irradiation is the method of choice in certain lesions of the hypopharynx and in the uterine cervix. Certain surgical preparations for the application of irradiation may be of aid in these areas.

Observations and familiarity with end-results impress the dangers of overenthusiasm for any one specific form of treatment to the exclusion of others. Incapacitating or mutilating surgery is to be avoided in cases which respond much more readily to irradiation. On the other hand, indiscriminate use of roentgen or radium radiation in possible radioresistant tumors which may be cured by surgery is to be condemned. We believe that histological study is of primary importance in determining and controlling any type of treatment.

The value of properly controlled irradiation cannot be overestimated. Our attitude can be summed up in the broad and fair statement by Spencer and Cade: "The lay public and a number of medical men are still under complete

misapprehension as regards the practical possibilities of radium therapy. Its possibilities are exaggerated, its pitfalls underestimated, and the medical literature, as well as the lay press, offer constant examples of unreasonable claims and unjustifiable statements. It is, however, as cruel and misleading to deprecate as to exaggerate the usefulness of this very delicate weapon, which in careful hands, controlled by minds unbiased or prejudiced, 'cures' a selected few, relieves a great many, and robs no one of the benefits of excisional surgery."

711 Medical Arts Building.

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Chart 8

RADIOSENSITIVITY OF HISTOLOGIC TYPES

(COMPILED FROM INFORMATION BY STEWART)

Location	Histologic Classification	Histologic Characteristics	Sensitive	Resistant
Intra oral	Adult squamous	Differentiated		+
	Spindle cell			Extremely
Ant. floor mouth	Squamous epidermoid	Highly vascular papillomatous	Relatively not highly	
Lip	Squamous epidermoid			+
Buccal mucosa	Squamous epidermoid			+
Hypopharynx	Squamous epidermoid	Varied differentiation		Relative
Tonsil				
Base tongue and Soft palate	Transitional cell		Moderately to highly	
	Spindle cell		Moderately to highly	
	Lymphoepithelioma		Sensitive	+
	Adenocarcinoma			+
Metastatic nodes from		Rapid fulminating	More than 1st lesion	
		Desmoplastic development		+
		Liquefying sloughing		+
		Fascial infiltration		+
Minor	Mixed			
Salivary	Adenoid-cystic epithelioma			+
Glands	Adenocarcinoma			+
Jaw	Adamantinoma			Probably
Esophagus	Carcinoma		Discouraging results	
	Epidermoid			
	Glandular			
of cardia			More sensitive	
Stomach	Andenocarcinoma			+
Large Bowel	Adenocarcinoma			+
Rectum	Carcinoma	Colloid	Mildly	+
	Carcinoma	Cellular, solid infiltration		
	Glandular	Papillary with hydropic embryonic cells		
	Adenoma destruens		May be Markedly variable	
Anal Canal	Epidermoid	Varied as elsewhere	Varied	Varied
Stomach	Lymphosarcoma		+	
Colon and	Leukemic lymphomas		+	
Rectum	Aleukemic lymphomas		+	

Location	Histologic Classification	Histologic Characteristics	Sensitive	Resistant
	Melanoma			+
	Myxosarcoma		?	?
	Carcinoids		?	?
Parotid and	Mixed	*Epidermoid duct carcinoma*		+
Submaxillary	Mixed	Adenoid-cystic carcinoma		+
Glands	Mixed	Less malignant	Apt to be	
Submaxillary		Malignant		+
Nasal Mucosa	Transitional cell		Markedly	
and Sinuses	Lymphoepithelioma		*Markedly*	
	Schneiderian	Anaplastic	+	
	Carcinoma	Mucoid		+
	Squamous carcinoma			+
Ethmoid	Epidermoid	Variable		+
Mastoid				+
		Embryonic anaplastic of childhood	Extremely	
	Angiofibroma or Angiosarcoma	Papillary or polypoid	*May undergo* slow sclerosis	
Lung	Carcinoma		Slow unsatisfactory	
Breast	Carcinoma		regression	
	Adenoma Malignum or Bulky	Develops in cysts	regression Mildly	
	Adenocarcinoma	Outside of capsules		+
	Comedo carcinoma	Confined to duct	Moderately	
		Infiltrating	Much less	
	Diffuse duct carcinoma		+	
	Other types		Unpredictable	
Axillary disease from			+	
Dermal metastases				*Unrelated* to tumor
Skeletal metastases			+	
Pulmonary metastases				+
Cervix Uteri	Epidermoid	Highly anaplastic undifferentiated cellular	Highly	
		Adult and less adult plexiform		Varied Highly
	Adenocarcinoma			
Corpis Uteri	Papillary adenoma malignum	Grade I		+
	Adenoma malignum	Grade II		+
	Adenocarcinoma	Grade III	Slightly	
	Diffuse embryonal or anaplastic carcinoma	Grade IV	Highly	
	Adenoacanthoma			+
	Myomata		(Biologic)	
	Myosarcoma		Slightly	
	Chorioepithelioma		Unknown	
Vulvar and Vaginal	Epidermoids			Variable Scant observation
				Probably as Epidermoids
Ovary	Diffuse embryonal carcinoma			Elsewhere
	Seminoma ovarii	Lymphoid stroma	Highly	
	Malignant Granulosa cell		+	
	Papillary Cystic	Low grade	+	
	Adenocarcinoma	High grade		+
	Retroperitoneal Mestastases			+
Kidney	Adenocarcinoma	Papillary or solid		+
	Hypernephroma			+
	Epidermoid	Papillary		Unknown
	Embryonal	Adult looking tubular renal		+
		Embryonal adenomyosarcoma (Wilms)	Extremely	
Suprarenal	Medullary carcinoma			Unknown
	Neurocytoma	Small cell	Exceedingly	
Testis	Medullary carcinoma	Adult		Unknown
	Teratoma	Adult		+
		With diffuse embryonal areas		"Pseudoresistant"
	Teratoma Complex	With squamous carcinoma		+
	Embryonal adenoma malignum or adenocarcinoma			+
	Choriocarcinoma			Relatively
	Embryonal carcinoma	Lymphoid stroma	Highly	
	Seminoma	Metastases from	Highly	
Bladder	Carcinoma			Unknown

Location	Histologic Classification	Histologic Characteristics	Sensitive	Resistant
Prostate	Carcinoma			Probably
		Bone metastases from		+
Thyroid	Papillary Adenocarcinoma	Grade I	Relatively	
		Metastases from	Relatively	
	Adenocarcinoma	Grade II	Relatively	
		Metastases from	Relatively	
	Spindle and Giant cell carcinoma	(Carcinosarcoma)		Very
	Anaplastic carcinoma	Small cell		+
Bone	Benign Giant Cell Tumors		Relatively	
		Upper femur and tibia		+
		Weight bearing bones in older people		+
		Jaw (not epulis)	Relatively	
		Cartilaginous variants at upper humerus	Relatively	
		Telangiectatic variants	Less	
		Xanthomatous variants	Relatively	
		Recurrent after curettage		+
		Infected from biopsy		+
		Growth penetrating capsule	Less so	
	Sclerosing Osteogenic Sarcoma			Extremely
	Osteogenic Chondrosarcoma			+
	Periosteal Osteogenic Sarcoma			+
	Cellular telangiectatic small cell Osteogenic Sarcoma			Less
	Telangiectatic large spindle and giant cell osteolytic Sarcoma			+
	Central spindle cell Osteogenic Myxosarcoma		May be	
	Endothelial Myeloma (Kolodny)		Highly	
	(Ewing's Tumor) Diffuse Endothelioma	Metastases from	Highly	
	Myeloma		Extremely	
	Plasmocytoma		Extremely	
	Myeloblastic Myeloma		Extremely	
	Lymphoid Myeloma		Extremely	
		Metastases from	Extremely	
	Hodgkin's Disease of		+	
	Liposarcoma		+	
	Multiple Xanthomatous of membrane bones in Christian's Syndrome		+	
Sarcoma	Neurogenic	Neurinoma		+
		Schwannoma		+
		Peripheral		+
		Perineural fibroblastoma		+
	Fascial			+
	Rhabdomyosarcoma			+
	Liposarcoma		Moderate	
		Small round cell and polyhedral cell	Very	
		Metastases from	+	
	Synovial Sarcoma		Mildly	
				Highly
Melanoma	Subcutaneous and Skin Metastases		+	
	Spidery angiectases		+	
Angioma	Port-wine naevi		Mildly	
	Hemangioma Hypertrophicum Cutis		Moderately	
	Bulky or aneurysmal Angiomas			+
	Angioendothelioma of Kaposi (multiple hemorrhagic sarcoma)			+
	Glomus (Masson's angiome neuromyarterial)			Variably
	Lymphangioma			Highly
	Squamous Epidermoid		Varied	Varied
Skin	Basal cell	Trichoepithelioma of Regaud	Relatively	
	Appendage Tumors (Geschickter)	Adenoid cell features		+
		Adenoid cystic epithelioma features		Very

Location	Histologic Classification	Histologic Characteristics	Sensitive	Resistant
		Bed of bone or cartilage		Most
Lymphoid	Lymphoma		+	
	Lymphogranuloma		+	
	Lymphosarcoma		Extremely	
		Malignant lymphocytoma	+	
		Reticulum cell lymphosarcoma	+	
	Lymphadenoma (Brill-Symmes type)		Very	
Nodes	Hyperplastic of Pseudolukemia			+
	Of Lymphatic Leukemia		+	
		Mikulicz Syndrome on Leukemic Basis	+	
	Hodgkin's Disease		Highly	
		Sclerosing fibrotic node changes		+
	Nodes in Myelogenous Leukemia		Very highly	
Thymoma	Lymphosarcoma or Reticulum cell Sarcoma		+	
	Lymphatic Leukemia		+	
	Pseudoleukemia		+	
	Simple lymphona		+	
	Reticuloendothelial tumors (Hodgkin's)		+	
	Hyperplastic Tuberculosis (Sternberg Type)		+	
	Endothelioma		+	
	Small cell anaplastic Carcinoma			Probably
Brain	Glioma			+
	Medulloblastoma		Slightly	
	Spongioblastoma Multiforma		Very slightly	
	Astrocytoma Protoplasmaticum		Slightly	
	Astroblastoma		Possibly	
	Pituitary adenoma		slightly	
	Lymphoma		Somewhat	
Orbital and	Neurosarcoma		May be	May be
Bulbar	Retroocular liposcarcoma		Slightly	+
	Melanomas			Extremely
	Neuroepithelioma of retina		+	
	Retinoblastoma		+	
	Retinal glioma		+	

STUDIES IN AUTOHEMOTHERAPY

Report of a case of Purpura Rheumatica with a new method of treatment.

LEO SAXON, M. D.

CHICAGO

Purpura rheumatica, a disease first described by Johann Lucas Schoenlein,[1] a German clinician of great renown, in 1839, is characterized by a combination of dermatological symptoms and arthritis, especially of the lower extremities. It must be differentiated from purpura hemorrhagica, or Werlhoff's disease, and from purpura simplex.

Purpura *simplex* is frequently found in children; it is a mild dermatosis, with few constitutional signs, the hemorrhagic spots appearing in crops, on the trunk and upper extremities. Purpura *rheumatica,* or Schoenlein's disease, is sudden in its onset, beginning usually with an attack of pharyngitis or tonsillitis, and is usually seen in debilitated individuals with "soft, vulnerable skin" (Schoenlein), multiple arthritis fever, and a profound degree of prostration accompanying the disease. The lesions are not purely purpuric, but mixed with urticarial elements, and nodular-erythematous ones; it is characteristic that the eruptions tend to localize themselves in the neighborhood of the affected joints. *Henoch's* type of rheumatic purpura is characterized by the presence of mucous hemorrhages and gastro-intestinal crises, attended by colic, vomiting and diarrhea; these visceral crises are of great diagnostic significance. A diagnosis of cholecystitis and appendicitis has often been erroneously made in such cases, and even an appendix removed from people suffering from Henoch's purpura.

All three above-mentioned types of purpura show no change in the amount of blood-platelets, in contradistinction to Werlhoff's disease (hemorrhagic purpura), where there is a marked decrease of the blood-platelets.

The present case is a typical one of Schoen-

lein's disease, significant in two respects, viz.: the marked severity of the constitutional symptoms, and the effectiveness of a new treatment, consisting of autohemotherapy.

The patient is a woman of 31 years, very frail, with pale skin and mucous membranes, in a very reduced nutritional condition, weighing less than 90 lbs. Significant in her history is a Neisserian infection, which occurred two years before her present illness. This infection led to a bilateral salpingitis, which was treated for six months conservatively. Pelvic examination at the time of the present illness reveals some thickening of both tubes, which, however, are not excessively tender; there is no leucorrhea, and slides from the cervix have been negative for a year.

The present complaint began with an attack of tonsillitis, lasting for one week; there was pain on swallowing, and a temperature which never exceeded 100° F. A week after the development of the sore throat, the patient's legs began to swell, and she had a severe chill. The temperature rose to 103° F. in the evening, and some slightly raised purple spots began to appear on both legs. Gradually, these spots became larger and more tender, until a week after their eruption, some of them attained the size of a silver dollar, and became deeply infiltrated and indurated. Both knes and ankles were greatly swollen, and motion in these joints was practically nil. For one week the patient experienced several severe chills a day, the tongue being heavily coated, the face pale and pinched, and the temperature rising to 104° F. and higher. The case assumed all the earmarks of a septicemia, as we find in so many cases of streptococus hemolyticus infections. The climax came, when a thorough examination of the heart revealed a soft systolic blow over all sites, and a diagnosis of acute endocarditis was made.

We, therefore, have here a characteristic picture of Schoenlein's disease, or purpura rheumatica, following an acute tonsillar infection. Most cases reported in the literature had a distinctly favorable prognosis. The development of endocarditis in this case gave it a more serious aspect.

There is no known effective treatment for Schoenlein's disease. A. Piney[2] used calcium gluconate, but it proved ineffective in this case. Salicylates, pushed to large doses (60 grains daily) were of no avail. Foreign proteins, in the form of boiled milk, were used on three different occasions; their well-known favorable effect in the control of rheumatic fever is a matter of record, but in this rheumatic purpura only a transient result was produced, inasmuch as the temperature and the swelling of the joints receded, but after ten days of treatment the toxemia and the purpuric spots remained the same, and the condition of the patient became grave. At this time resort was had to autohemotherapy.

The mechanism of autohemotherapy is still in doubt, although various theories have been advanced to explain the indubitable therapeutic results achieved in a variety of clinical conditions. The procedure consists of withdrawing varying amounts of blood from the vein and either injecting the whole blood quickly before it coagulates, into the muscles, or allowing it to stand for several hours until the serum separates from the solid particles, and then only utilizing the blood-serum. Some men have also subjected the venous blood after its withdrawal to further treatment (for example, ultra-violet irradiation) and others have re-injected the blood serum again intravenously. Where large amounts of blood are withdrawn, we are reminded of the time-honored method of "blood-letting" or "venesection," the rationale of which has been thoroughly studied, for instance, by H. Stern in 1915. The effect of this method in the *pneumonias* is gaining new support; we know that by removing the venous engorgement in the circulation of the lungs, we can prevent the development of pulmonary edema; we relieve the work of the heart, which is under a considerable stress in pneumonia, and this may be therefore a life-saving measure. The effect of venesection in *chronic bronchitis* is specifically mentioned by Osler, and several authors have advocated the use of blood-letting in desperate cases of *eclampsia.*

But in our modern method of autohemotherapy, we use smaller amounts of blood, as a rule not more than from 2 cc. to 10 cc. As Vorschutz has shown, after removal of blood, there appear in it substances that are capable of exciting the sympathetic nervous system. Therefore, this form of therapy does not act in a specific way, but it increases the "histio-cytic action" of formed elements, and augments the bactericidal power of the blood-plasma. It has been contended that it is a form of protein-shock therapy, but according to F. Schuer this idea must be discarded, as the blood, after being re-injected, is absorbed very rapidly within an hour—that is, much more quickly than with the foreign proteins.

At the present time this method has been used extensively in the management of skin diseases, and especially in psoriasis; the result in some *allergic* conditions is very gratifying, and we have seen numerous cases of *urticaria,* and some cases of *asthma* in children, yield very quickly

to small doses of autogenous blood; in psoriasis, the results are still disappointing. We must assume that the effect in these allergic cases is in the nature of a *desensitizing* process, not unlike that produced by peptone. The dosage is best maintained by using small frequently repeated amounts, because we desire to get a slowly accumulating desensitizing effect. In infectious conditions, as those of the respiratory organs, and in septic conditions, the dosage should be larger, and the intervals longer: the rationale apparently is different. Thus, in pneumonia, where the method of Tillmann[3] was used, doses as high as 100 cc. repeated at an interval of two days, has been found very effective; for most other conditions five to ten cc. are sufficient as mentioned before. In our opinion, autohemotherapy should be used much more than it has been, and the therapy of several diseases with a high mortality will be favorably influenced when this simple method will become more popular, and the basis of its use and dosage will be more thoroughly understood.

Following two injections of the patient's own blood, this case rapidly came to a successful conclusion. The infiltrated purpuric spots disappeared, leaving faint brownish pigmentations on the skin of both legs. The toxemia and temperature abated after the first injection of five cc. of the patient's blood; after four weeks, no trace of the disease remains, excepting a faint systolic murmur at the apex of the heart.

CONCLUSIONS

1. A case of purpura rheumatica or Schoenlein's disease is reported with severe constitutional signs, and the development of endocarditis.

2. A new treatment is recommended, consisting of the administration of the patient's own blood (autohemotherapy).

3. The rationale and indications of autohemotherapy are discussed.

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300 W. North Ave.

FAIR ENOUGH

Doctor: "I will examine you for ten dollars."
Patient: "Go ahead. If you find it, I'll give you half."

IS MALARIA EVER RESISTANT TO QUININE THERAPY?

Report of an Apparant Case

A. C. SCOTT, M. D.
EVANSVILLE, ILL.

Statements such as the following fully support the historical fact that quinine for over three hundred years has been used as a specific for malaria. Osler[1] states generally that, "In quinine we possess a specific remedy for malaria." While Bass[2] in Cecil's Text-book of Medicine is more definite: "During the past eight years the writer has not only followed the treatment of many cases but has investigated whenever possible cases that were resistant to quinine. Not a single case has been found in which symptoms persisted even for three days after administration of as much as thirty grains of quinine daily. They may exist, nevertheless, but certainly are rare." Craig[3], in addition, presents evidence as to the existence of a quinine-fast malaria being absolutely unreliable. Fletcher[4] admits that an absolute resistance to quinine is not impossible but that he has never seen a case in his wide experience. Sinton[5] failed to find a single case of quinine resistant malaria among fifteen hundred patients suffering from benign tertian malaria. And Bass[6] concluded that cinchona alkaloids, especially quinine, constitute the only specific remedy for malaria.

A thorough perusal of the literature of the American Medical Association failed to reveal a single case of malaria that did not respond to adequate doses of quinine.

An array of proof such as this should definitely settle any doubt concerning quinine as a specific remedy, nevertheless I wish to report a case of malaria which in my opinion has proved an exception.

E. L., a white male, age 26, farmer, entered the office on Aug. 7, 1937 complaining of headaches of two weeks duration. Previously he had been coughing for several nights and had had one attack of nose-bleeding. Each afternoon for two weeks he had had a slight chill and a rise in temperature.

The examination revealed P. 86, T. 102 and W. B. C. count of 6450. The rest of the examination was negative except for an enlarged and tender spleen. Blood was taken for a Widal test and malarial smears, and sent to the state laboratory. He was placed on quinine, grains 10 t. i. d. These reports showed a negative Widal and blood culture, but were positive for plasmodium vivax.

The patient returned on the morning of Aug. 10 feel-

ing better and had had no chill the previous day. His temperature was 98.2 and pulse rate 76. He returned the same afternoon with his temperature elevated to 102.6 and feeling much worse. He was given .6 gm. of neoarsphenimine intravenously and told to return the next afternoon. On Aug. 11 his temperature was still elevated to 102.6 and he was given an additional .4 gm. of neoarsphenamine.

On Aug. 13 he was seen in consultation with the State Board of Health representative. Examination showed P. 90, T. 102.2, and a W. B. C. count of 5400. There were a few rose spots on the abdomen and his spleen continued to be enlarged and tender. He was diagnosed typhoid fever, and quinine was discontinued. More blood was taken for Widal and malarial smears and sent to the state laboratory, but the reports a few days later showed a negative Widal and blood culture, while they continued positive for plasmodium vivax.

On Aug. 13 he was given atabrine 1.5 grains t. i. d. and his temperature began to show a gradual decline from day to day. Atabrine was discontinued after six and a half days due to a definite yellowish discoloration of the patient. On Aug. 18 a stool and urine specimen was sent to the state laboratory and on Aug. 23 blood for another Widal. This Widal was also negative, but a few days later the stool and urine returned positive for typhoid bacilli. On Aug. 24, 1937 his temperature became normal and did not elevate after that date. Two subsequent stool and urine specimens were negative for typhoid bacilli, and the patient was released from quarantine.

Several theories can be advanced why 30 grains of quinine sulphate for one week failed to eradicate malaria in this case. Perhaps the presence of the typhoid infection in some way prevented the quinine from acting. Deeks[7] believes the failure of quinine to cure malaria is due to lowered resistance caused by one or more chronic infections. Sinton[8] thinks that there is a variation in virulence of the malaria parasite, and this may explain the reason that my patient failed to respond to the usual doses of quinine.

A correspondent in the British Medical Journal[9] found cases that were not cured by quinine sulphate but responded to quinine hydrochloride or bi-hydrochloride. This was due to the failure of quinine sulphate being absorbed since the tests of the urine were negative for quinine. And since, too, I tried no other form of quinine except the sulphate in the case reported, it is possible that other salts might have cured him. Bass,[10] however, maintains that "no salt of quinine is more effective than the sulphate."

It is possible also that larger doses or longer medication with quinine sulphate would have effected a cure, but my patient experienced severe tinnitus and my consultant thought the patient had had sufficient medication.

SUMMARY

Quinine is regarded as a specific in the treatment of malaria. Nevertheless a case is reported in which 30 grains of quinine daily for six days and two injections of neoarsphenamine of .6 gms. and .4 gms. respectively, failed to cause a disappearance of the parasites from the peripheral blood. This may have been due to the concomitant attack of typhoid fever or the presence of an extraordinary virulent strain of malaria, or failure to use other quinine salts than the sulphate. Quinine therefore cannot always be relied upon to diagnose and treat unknown fevers.

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4. Fletcher, William; Notes on the Treatment of Malaria with the Alkaloids of Cinchona; John Bales and Sons and Donaldsons, Ltd., London, 1923.
5. Sinton, A. A.: Far East Tropical Medical Treatise, Seventh Congress, 1927, p. 599.
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7. Deeks, W. E.: Medical Department of United Fruit Co.: Some Features of Malaria Medical Control.
8. Cinton, J. A.: Malaria Survey of Indiana, Oct. 6, 1930.
9. Correspondent, "I. M. S.": Resistance to Quinine in Malaria, Brit. Med. J., 1: 542, 1927.
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Marriages

EDWIN F. BAKER, Ashton, Ill., to Miss Mildred Louise Short of Chicago, at Tipton, Iowa, April 14.

PAUL S. HANSEN to Miss Elizabeth Coit, both of Chicago, March 26.

MILTON L. MILLER, Chicago, to Miss Bernice Saul of New York, May 6.

JULIUS B. STOKES, Pontiac, Ill., to Mrs. Georgiana Nance Donar of Kankakee, May 16.

Personals

Dr. Frederick R. Schmidt, Chicago, discussed common diseases of the skin before the Madison County Medical Society in Alton June 3.

Dr. Conrad S. Sommer, medical director, Illinois Society for Mental Hygiene, has been appointed director of the organization, succeeding Miss Helen L. Myrick, resigned.

The Macoupin County Medical Society was addressed in Carlinville May 24 by Drs. Robert

J. Crossen and Franz J. Arzt, St. Louis on gynecology and newer management of threatened abortion, respectively.

Dr. James W. Cook of the Research Institute of the Royal Cancer Hospital and professor of chemistry, University of London, delivered a lecture at Michael Reese Hospital, July 14, on "Cancer Producing Agents and Their Biological Effects."

Dr. Wilmier M. Talbert, Decatur, formerly city physician for Decatur, has been appointed health officer of a new district health unit with headquarters at Clinton. The counties of Macon, Moultrie, Dewitt, Piatt and McLean are included in the new unit.

Lydia J. Roberts, Ph.D., chairman of the department of home economics, University of Chicago, received the Borden Award for research in nutrition, at the recent annual convention of the American Home Economics Association in Pittsburgh. The award consists of a gold medal and $1,000. Dr. Roberts is a member of the Council on Foods of the American Medical Association. Amy L. Daniels, Ph.D., research professor of nutrition, Child Welfare Research Station, State University of Iowa College of Medicine, Iowa City, won the award in 1937 but the presentation was made at the recent convention.

The new officers of the Chicago Gynecological Society are: President, David A. Horner; President-Elect, Julius E. Lackner; Vice-President, Harold K. Gibson; Secretary, Edward Allen; Treasurer, George H. Gardner; Pathologist, John I. Brewer; Editor, William B. Serbin.

The new officers of the Chicago Society of Internal Medicine are: President, Louis N. Katz; Vice-President, L. C. Gatewood; Secretary-Treasurer, Clarence F. G. Brown.

News Notes

—A demonstration in the laboratory testing of blood specimens will be a feature of the annual state fair in Springfield August 13-21. A serologic laboratory will be installed in the exposition building as a part of the exhibition by the state department of health.

—The Institute of Medicine of Chicago announces that its committee on the Elizabeth McCormick Child Research Grant has at its disposal the sum of $750 to aid a qualified investigator in the Chicago area in child welfare research. Projects should in a broad sense be in the field of pediatrics, it was stated. Applications will be received up to September 15 and the award made early in the fall. Applications should be sent to Dr. John Favill, secretary of the committee, 122 South Michigan Avenue.

—A graduate course in electrocardiography will be presented at Michael Reese Hospital by Dr. Louis N. Katz, director of cardiovascular research, August 22-September 3. It is planned to individualize the course so that at the end of the period each student will be capable of taking and properly interpreting routine electrocardiograms. Additional information may be obtained from the medical librarian at the hospital, Twenty-Ninth Street and Ellis Avenue.

—The University of Chicago will receive $1,500,000 from the Rockefeller Foundation for research in the biologic sciences, provided an additional sum of $500,000 can be obtained from outside sources before June 30, 1941. During the next three years the foundation will provide $180,000 at the rate of not more than $60,000 a year for biologic research. This grant has been made so that the equivalent of the income of the capital sum of $1,500,000 will be available to the university during the period allowed for raising the sum of $1,500,000. Should the university secure the funds in a shorter period, the temporary annual grants will be canceled. The foundation has provided grants for the support of basic laboratory research in fundamental biologic problems since 1929 and the new endowment will support this work permanently on a larger scale.

—A graduate course in obstetrics and pediatrics will be conducted by the department of obstetrics and pediatrics at Research and Educational Hospital during July and August. The speakers will include Drs. Joseph L. Baer, Frederick H. Falls, Fred L. Adair, William C. Danforth, Abraham F. Lash, William H. Browne and Charles Newberger, all obstetricians, and Drs. Julius H. Hess, Clifford Grulee, Arthur H. Parmelee, Isaac A. Abt, Maurice L. Blatt, Robert A. Black and Henry E. Irish, all pediatricians. The course, consisting of lectures on special subjects, round table discussions, ward walks in the hospital, dispensary service, manikin, home and hospital delivery, is designed to meet the needs of the general practitioner as

they are encountered in everyday practice. The registration fee is ten dollars; checks should be made payable to the University of Illinois, 1853 West Polk Street.

Deaths

MINNIE RIDGEWAY BISHOP, Chicago; Hahnemann Medical College and Hospital, Chicago, 1889; aged 77; died, April 13, of bronchitis and myocarditis.

WALTER LAWRENCE BLOMGREN, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1915; a Fellow, A. M. A.; served during the World War; aged 44; died, April 20, in the Edgewater Hospital of staphylococcic septicemia.

CANUTE L. BRUDEWOLD, Chicago; St. Louis Medical College, 1887; aged 72; died, April 10, of carcinoma of the stomach.

RUSSELL NEWTON DAVIS, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; on the staff of the South Shore Hospital; aged 54; died, April 30, of coronary thrombosis.

ALICE HONCE, Peoria, Ill.; Keokuk (Ia.) Medical College, College of Physicians and Surgeons, 1904; aged 73; died, May 1, in St. Joseph's Hospital, Kokomo, Ind., of injuries received when struck by an automobile.

WILLIAM M. HONN, Champaign, Ill.; National Medical College, Chicago, 1899; member of the Illinois State Medical Society; past president of the Champaign County Medical Society; aged 66; on the staff of the Burnham City Hospital, where he died, May 7, of heart disease.

WILLIAM A. JAMES, Chester, Ill.; St. Louis Medical College, 1881; member of the Illinois State Medical Society; aged 83; died, April 15, in St. Clement's Hospital, Red Bud, of intestinal obstruction.

FLEMMING, LOURESTON LIGGITT, Rankin, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; president of the school board; aged 64; died, May 17, in the Lake View Hospital, Danville, of hemiplegia and cerebral hemorrhage.

GUSTAV AUGUST MILLER, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; on the staff of St. Elizabeth Hospital; aged 71; died, May 6, of cerebral hemorrhage.

CLARENCE EUGENE PIERCE, O'Fallon, Ill.; Washington University School of Medicine, St. Louis, 1903; aged 66; died, April 9.

VANCE RAWSON, Chicago; Hahnemann Medical College and Hospital, Chicago, 1901; a Fellow, A. M. A.; formerly member of the school board in Danville, Ky.; served during the World War; at one time professor of internal medicine at his alma mater; on the staff of the Chicago Memorial Hospital; aged 61; died, April 19, of coronary thrombosis.

LEWIS THOMAS RHOADS, Lincoln, Ill.; Hahnemann Medical College and Hospital, Chicago, 1902; member of the Illinois State Medical Society; past president of the Logan County Medical Society; served during the World War; formerly member of the school board; on the staffs of the Evangelical Deaconess Hospital and St. Clara's Hospital; aged 63; died, April 13, of chronic myocarditis.

JOHN RITTER, Miami, Fla.; Rush Medical College, Chicago, 1880; a Fellow, A. M. A.; assistant professor emeritus of medicine at his alma mater member of the Illinois State Medical Society; author of "Handbook of Tuberculosis for Medical Students and Practitioners of Medicine"; aged 84; died, May 23, in Springfield, Ill.

EVA S. SHAVER, Chicago; National Medical University, Chicago, 1903; aged 67; died, April 6, in the Norwegian American Hospital of hypertension and chronic myocarditis.

JOSEPH A. SMITH, Chicago; Chicago College of Medicine and Surgery, 1909; a Fellow, A. M. A.; aged 54; died, April 3, in Miami Beach, Fla.

ORION KEMPER THOMSON, Chicago; Miami Medical College, Cincinnati, 1889; aged 71; died, March 11, of chronic nephritis, prostatitis and arteriosclerosis.

ALFRED LUBBERT VAN DELLEN, Chicago; Northwestern University Medical School, Chicago, 1910; a Fellow, A. M. A.; member of the American Academy of Ophthalmology and Oto-Laryngology; on the staffs of the Illinois Eye, Ear, Nose and Throat Infirmary and the Englewood Hospital; aged 50; died, April 1, at Rochester, Minn., of ureterolithiasis.

CHARLES WALDEN, Harrisburg, Ill.; St. Louis College of Physician and Surgeons, 1909; aged 65; died, April 25.

MARCUS BRYED WILSON, Chicago; University of Illinois College of Medicine, Chicago, 1916; a Fellow, A. M. A.; on the staff of St. Luke's Hospital; aged 53; died, May 16, of coronary thrombosis.

JOHN DESHA WITT, Aurora, Ill.; Hahnemann Medical College and Hospital, Chicago, 1906; aged 63; died, March 2, of coronary occlusion.

GEORGE ANTHONY ZELLER, Peoria, Ill.; St. Louis Medical College, 1879; member of the Illinois State Medical Society; veteran of the Spanish-American War; formerly state alienist; at one time superintendent of the Peoria State Hospital, and managing officer of the Alton (Ill.) State Hospital; aged 79; died, June 29, of cardiac insufficiency and bronchopneumonia.

HENRY TURMAN BYFORD, Chicago; Chicago Medical College, 1873; a Fellow, A. M. A.; professor of gynecology emeritus, University of Illinois College of Medicine; member of the Western Surgical Association; fellow of the American College of Surgeons; on the staffs of St. Luke's and Chicago Lying-in hospitals; honorary president of the International Congress of Gynecology in 1896 and president of the Chicago Gynecological Society during 1887 and 1888; author of "Manual of Gynecology"; joint author of "Diseases of Women," "American Text Book of Gynecology" and various other books and papers on the subject of gynecology; aged 84; died, June 5, of chronic myocarditis and nephritis.